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AS THE EDITOR SEES IT

SOAPS are being sold at a loss by wholesale grocers, according to an official of a mid-west wholesale grocers' association who recently assailed his fellow wholesalers for permitting this supposed profitless soap distributing to continue. He pointed out that eight large soapers showed a profit of 24.3 per cent in 1947 against a figure of 17.5 per cent in 1940,—and then went on to say: "Do you know of any wholesale grocer who made that much profit on the soap they sold in either year? I wonder how long we wholesale grocers will continue to be suckers and sell soap at less than the cost of doing business."

Continuing along the same line, he stated that the soapers "sell direct to all the better and larger retailers. They leave the small fry to be supplied by the wholesalers . . . One would think that a man intelligent enough to operate a wholesale grocery business would have sense enough to at least get back his original investment on every item he sells and not be used as a tool by a group of manufacturers who are cynically indifferent to what happens to the distributors."

Obviously, this is one side of the story,—and one side alone. No soaper forces any wholesaler to stock and distribute his brands. We have known of both wholesalers and retailers who have refused to stock and sell certain nationally advertised brands. Then, the wholesaler's overall costs may be too high or competition between wholesalers may be forcing a too-low average profit margin upon them. And from whence does every wholesaler or other distributor feel that he derives some God-given right to make what he believes should be his top margin of profit on everything he sells? Do not variations in conditions determine the conduct of every business, including adjusting a business to those variations?

Frankly, we feel that raising hell with the soap manufacturers as wholesalers have been doing regularly for the past thirty years which we can remember, will do no good. Much talk has been batted around for years about throwing a searchlight on distribution and distributing systems. If this ever has been done, we see little evidence of change resulting. By and large, wholesaling is still the same old sardine in the same old can, notoriously inefficient and out of step with the times. Maybe that searchlight again might reveal the real troubles to a disinterested observer,—rather than just blindly blaming all ills on the refusal of manufacturers to permit them to make what they feel is a sufficient margin of profit.

COMPLETION of the new Shell synthetic glycerine plant near Houston, Texas, at a cost of eight million dollars, once again poses several questions of deep interest to all glycerine producers and users alike. Does this mark the beginning of a new era in glycerine production wherein a low-cost synthetic product will gradually replace glycerine derived from fat? What will happen to the 125,000 tons of refined glycerine now produced in the United States by soapers and fat splitters? Will the day come again when it will be more economic for soapers to run their glycerine lyes down the sewer than to recover and refine the glycerine?

Over the years, soapers have worried about the threat of cheap synthetic glycerine eventually making their profitable by-product something of a drug on the market. But to date, their worries have been for naught. Glycerine consumption in the United States has grown faster than production. We have always been a glycerine importer. Research has developed a long line of new uses. Old uses have expanded steadily. And at a sensible price, we can foresee no change in this trend. For twenty years, glycerine has been excellently publicized, thanks to the Glycerine Producers' Association. Chemically, it is a handy and convenient product. Physically, it stands alone for many important

applications. Its range of uses makes a list already as long as a man's arm, the diversity of which is reassuring to future demand.

At a sensible price,—and this is not in our opinion forty or fifty cents for refined grades, but nearer to half of this,—we believe that glycerine consumption could double or triple itself within the next decade. We have a hunch that this new synthetic glycerine production will be taken in stride by the market after perhaps a few minor preliminary adjustments. We believe that additional synthetic production will also be forthcoming, but that the demand will be there to absorb it if and when it does come. That the 125,000 tons now produced each year by soapers and fat splitters might be eventually but a minor portion of our total output is altogether conceivable.

Thirty years ago, John F. Queeny, Monsanto Chemical's founder, predicted to us that the then five million pound yearly American phenol consumption could easily increase ten times. That was considered something of a rash prediction at the time, but actually the increase since then has been fifty times. There are those who feel that it could also happen to glycerine.

EVERY home or institution which must depend on hard water potentially is a better customer for a synthetic detergent than it is for soap. If the cost of a detergent is not prohibitive, eventually it will be used. Hard water has always been the weak spot in soap performance even though soap admittedly is definitely superior for some washing operations. Accordingly, any marked trend toward a change in water supplies throughout the country, especially if that trend be toward harder water, may have a very pronounced bearing on the relative demand for soaps and synthetic detergents.

Throughout the rural areas of the country during the past twenty years, we believe that the trend has been toward more and more deep drilled wells with their automatic pumping equipment and mostly hard water. The old-time cistern with its soft rain water of uncertain supply has been slowly but surely passing from the scene. In short, many thousands of new homes, and some old ones as well, have switched from soft to hard water in recent years,—and the trend still continues, but at an accellerated pace.

With no specific figures at hand to back up any such contention, we nevertheless believe that the average of hardness of waters used in American homes has been and is climbing steadily upward. Spotty reports of well drilling operations in a few sections of the country—and this naturally does not include cities or other areas with central water supply where hardness figures are more or less constant and well-known—indicate that such work has been restricted only by the limitations of available equipment and has been at even a greater rate than new construction. Although water softening systems and services have likewise shown expansion in use, we do not imagine that this has approached the rate of deep well drilling.

As long as soaps or detergents are used with water, the effect of any marked changes in water supplies on the market for such products is quite obvious. If there is a definite changing trend in our rural water supplies, the subject is of important interest, and one which we intend to pursue further.

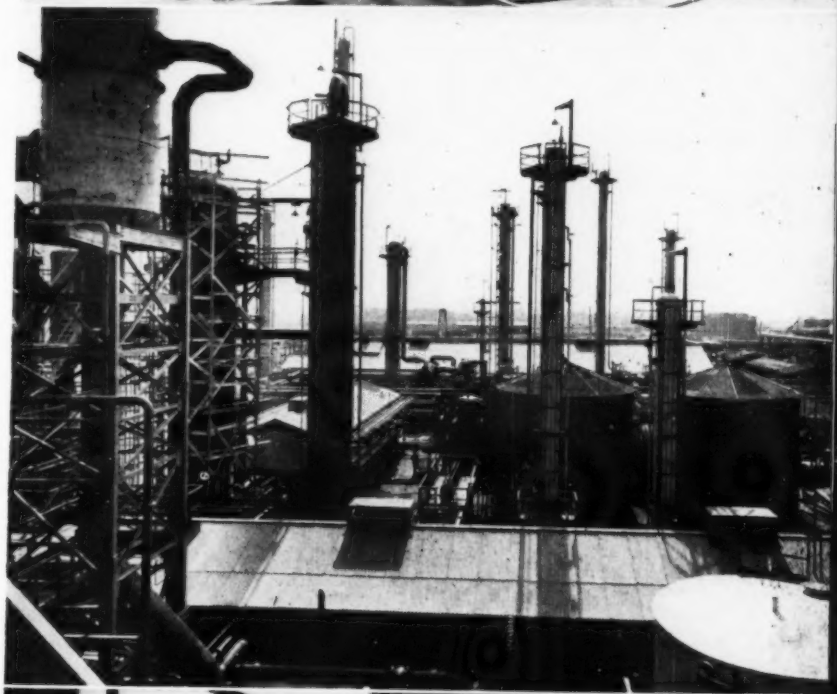
SITTING with a group of chemical specialty manufacturers recently and listening to them tell of their troubles, we became more convinced than ever that what America needs is not a good five cent cigar, but rather some sure-fire way to make housewives and other consumers read label instructions before using a product. After a quarter-century of observation of this little matter, we know deep down that our quest is in vain. But, still we go on searching. If only a little man could jump out of each package as it is opened and tap the user on the skull with a small mallet as a reminder, think of the lawsuits and a thousand other headaches manufacturers would avoid. Here's to the Amalgamated League to Protect Manufacturers by Making Consumers Read Package Labels!

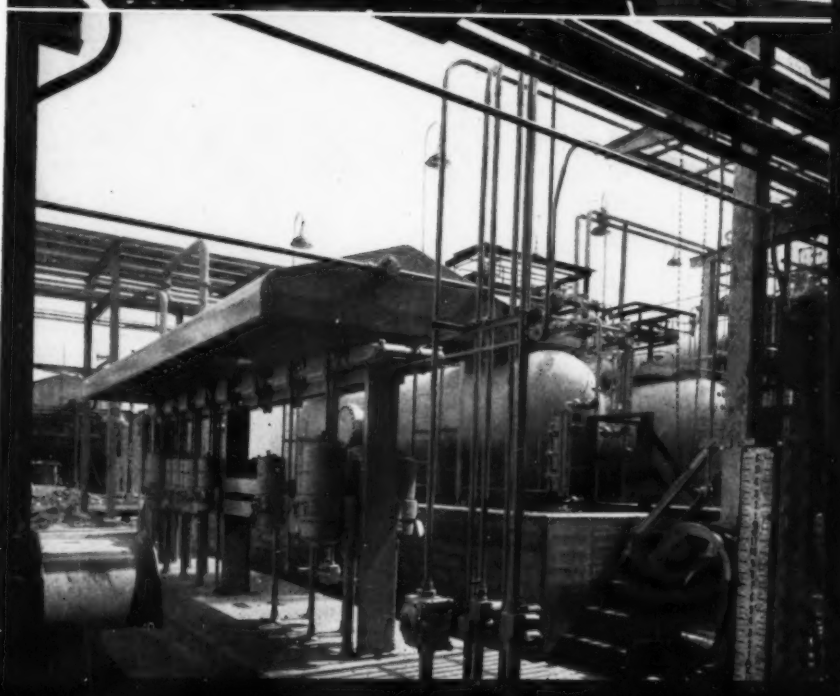
SYNTHETIC GLYCERINE

By John W. McCutcheon

A description of Shell Chemical's new, eight million dollar Texas plant and process







Right, top: A close-up of the equipment in operation at Shell Chemical's new synthetic glycerine plant in Houston, Tex.

Columns and storage tanks at the new plant.

Bottom: Overhead relays shown here are for the protection of circuits and equipment at the new plant where glycerine is synthesized from petroleum.

ALTHOUGH synthetic glycerine has been produced by fermentation processes for a number of years, the method heretofore has only been economic in times of great need such as during a war. Therefore, when the chemical industry was informed ten years ago (1) that glycerine had been manufactured on a pilot plant scale by well defined chemical reactions and at a price profitable at the then considered normal level, of 14 cents for C.P. tank cars, and 8½ cents for 80 percent soap lye crude, a great deal of interest was aroused. The development depended on the selective chlorination of propylene to allyl chloride and subsequent conversion to glycerol by subsequent treatment with caustic soda. Although the research and pilot plant work was concluded ten years ago, economic conditions and the recent war postponed the completion of final plans for construction of the large scale plant. In September, 1947, actual ground work was begun at Houston, Tex. and today the Shell Chemical Corporation's $8,000,000 plant there is in full commercial production. The unit is the world's first commercial synthetic glycerine plant and repre-

1 E. C. Williams, Modern Pet. Research, *Ind. & Eng. Chem. News* Ed. 16, 630-3 (1938).

sents an entirely new industrial source for this essential product.

The essential raw materials for the process are petroleum salt and water; all of which are available in plentiful supply. Nearly 20 years ago Shell's research organization decided that the best starting point for the manufacture of synthetic glycerine was allyl chloride. The problem was to chlorinate propylene so that a substitution reaction would take place and the double bond would be preserved. This problem was solved through proper control of temperature, pressure and reactant concentration to give yields up to 80 percent of allyl chloride. (1) (2)

The first step of the process therefore consists of reacting propylene and chlorine under controlled conditions to yield the maximum output of allyl chloride. This latter is then purified through a series of distillation steps.

The second step is the reaction of allyl chloride with caustic soda and chlorine under controlled conditions of pH, temperature and time to yield a dilute solution of glycerine and salt.

The third and fourth steps follow much the normal methods of concentration and distillation as practiced by soapers. The raw solution is pumped to multiple effect vacuum evaporators which provide over a quarter of an acre of heating surface. Salt is removed in conventional equipment and the slurry settled as for a salt crude. The concentrated glycerine salt slurry is then fractionated in conventional type vacuum stills after which it passes a purifying stage corresponding to the normal bleaching process, and is transferred to storage.

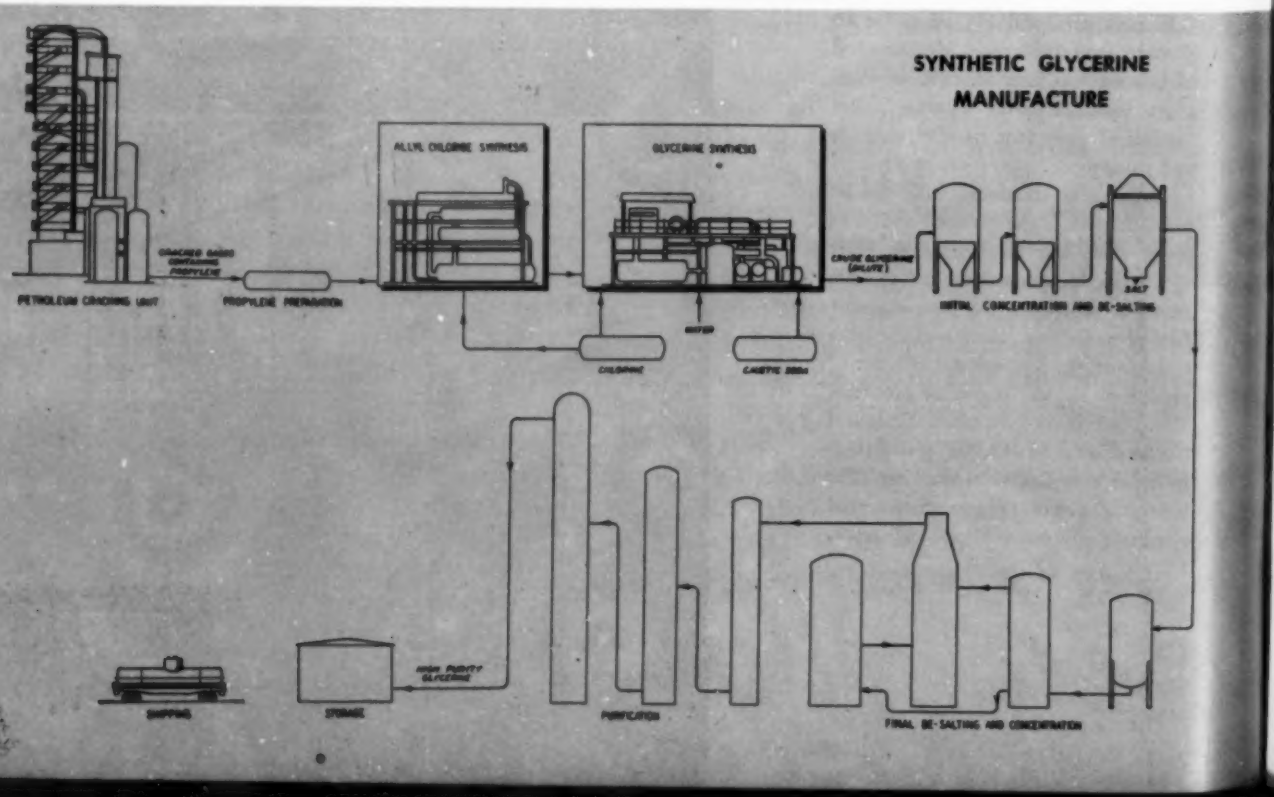
The quality of glycerine obtained is equal to that of the standard market grade for CP or dynamite and will be sold on an equal price basis. Shell Chemical's research has shown that aluminum is a most satisfactory metal in which to transport glycerine without color reversion. Accordingly a fleet of made-to-order tank cars of this metal will be used in subsequent handling. Plastic lined drums will be used for smaller quantities.

From a purely chemical viewpoint, fats can now be completely synthesized from petroleum products. In Germany during the war, several large plants were continuously occupied in fractionating suitable fatty acids from the Fischer-Tropsch synthesis and esterifying them with natural glycerine into edible products. Conceivably, now even the glycerine could be included in the synthesis. However, the true significance of the Shell Chemical development lies in the fact that it was conceived in peace time, actually hindered in its development by the war, and finally brought to full production scale in a period of peace. This contrasts greatly with such accelerated war-time developments as that of synthetic toluene, rubber, fats, etc.

The economic soundness of the development is probably best illustrated by a statement made in 1938, that the synthetic product could compete on an even basis with the then current price of glycerine. (1) At that time CP glycerine was being quoted in tank car lots at 14 cents and 80 percent soap lye crude at 8½ cents. Raw material, labor and capital costs, of course, will have their due bearing

(*Turn to Page* 44)

2 H. P. A. Groll & G. Hearne: Ind. Eng. Chem. 31, 1530-7 (1939).



Left to right and top to bottom: Fractionating columns are part of facilities comprising Shell's synthetic glycerine plant at Houston.

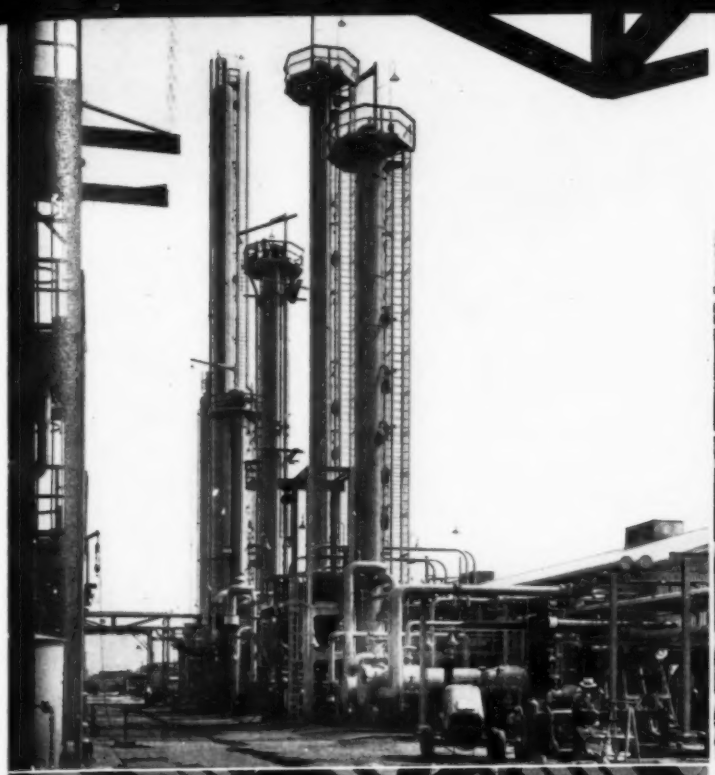
A partial view of the new Shell plant.

View showing processing equipment used in the commercial synthesis of glycerine. Distillation columns are in background.

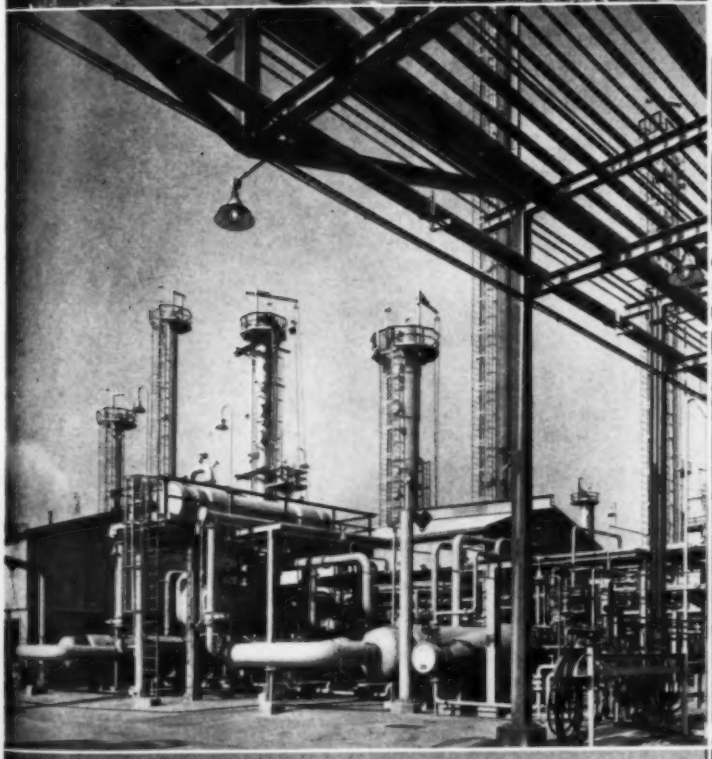
View showing pipeway and operating equipment at the new synthetic glycerine plant.

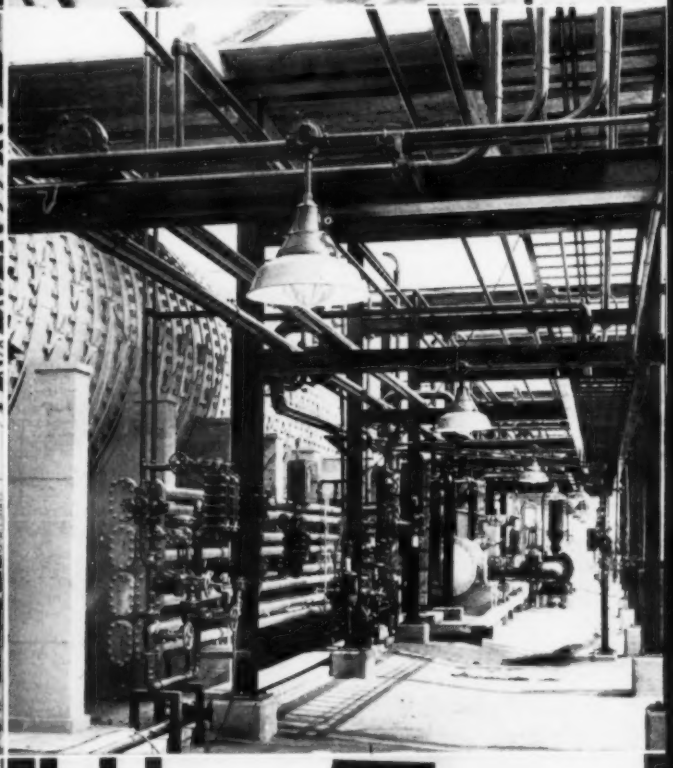
View of tank farm at Shell's synthetic glycerine plant showing, in the foreground, storage facilities for glycerine and chemicals related to its manufacture.

Chemical storage facilities (extreme right) and complex piping required for making glycerine synthetically.













Cleaning the "Mainliners"

By H. H. Slawson

SANITARY maintenance of the big "Mainliner 300" (DC-6) planes which fly the air lanes over the 10,700 mile transcontinental United States system of United Air Lines has been reduced to an exact science. Nothing is left to chance, every step in the process of cleaning and reconditioning the planes after their aerial trips is carefully specified in company manuals. As a result, these huge flying transports are far more immaculate inside and out than any family car can ever be kept by even the most fastidious owner.

At the big "push button" maintenance base opened early this year at San Francisco some of United's facilities for handling the cleaning job, it is claimed, are not duplicated by any other air line or aviation activity.

The job of sanitizing the planes is done, not only at San Francisco but also at various other terminals along the system. Frequency of cleaning naturally depends on the nature of the weather and the type of terrain over which the plane has been flying. At all times planes are kept as nearly spotless as possible, with the assurance that after 700 hours of flying time there will be a thorough cleaning at 'Frisco.

To keep its fleet of "Mainliners spic and span United Air Lines employs special crews. Generally speaking, to clean the exterior of one plane requires ten men and an elapsed time of four hours. However, this schedule varies with the type of plane and the amount of dust and grease which has to be removed. Two men can clean the interior of a "Mainliner 300" in two hours, and on this basis approximately 30 planes are thoroughly cleaned each day.

At the new San Francisco base, situated at the north end of the Municipal Airport, thorough cleaning calls for the complete stripping down of all "Mainliner" interiors. As the big DC-6 is maneuvered into the 130-foot long maintenance dock in the hangar, the push buttons begin to operate.

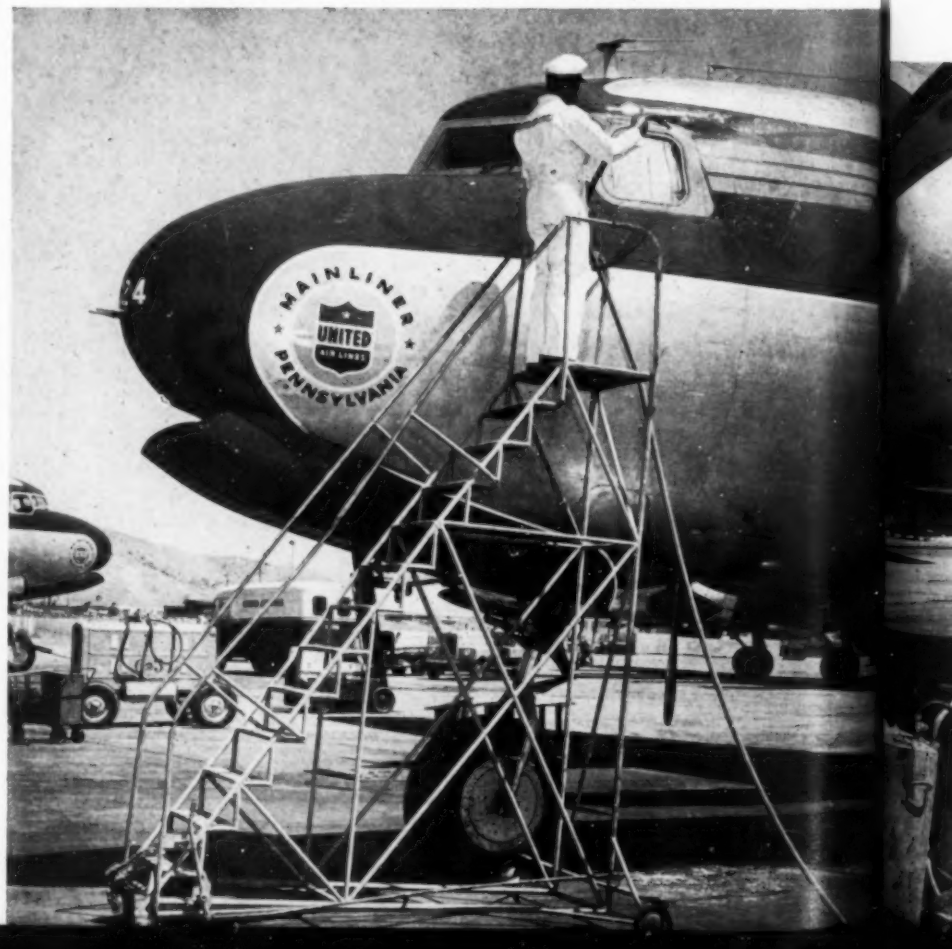
From overhead a unique system of metal catwalks descends to nestle snugly around the plane and provide a ready access for the overhaul crews. In a matter of minutes some 50 men are ready for work. Fifteen of them, including one cleaner, four painters, nine mechanics and one lead man equipped with appropriate tools, remove seats, lights, rugs and practically everything else from the cabin interiors.

Rugs, blue seat coverings, curtains and other fabric materials are rushed off for a dry cleaning while vacuum machines start humming to remove dust, prior to application over all surfaces of "Air-Nu," a fumigation solution.

Meanwhile, to restore the exterior of the airliner to its original appearance, a high-pressure sprayer, the "Mulsbury" cleaner, is put into operation. This sprayer shoots water mixed with soap under 250 pounds pressure over the outer surface of the plane and, following this, there is a rinse under 2400 pounds pressure.

United's maintenance engineers explain that, basically, there are three methods used in cleaning the planes. First, emulsion cleaning, in which Turco "Mulcirex" or "Cee-Bee Allumaloy" is sprayed on, making the soapy solution which is then rinsed off with a hose. The second method is dry cleaning, generally done inside a hangar. By this method a cleaning agent is applied with a mop and allowed to dry on the parts before it is removed with a dry cloth. Finally there is alkaline cleaning, by which a solvent is sprayed on the plane, agitated with brushes and rinsed. A

A United Air Lines' "Mainliner 300" (DC-6) receiving a soap and water hosing at the San Francisco base as part of its overall process.



Johns-Mansville product, "Snow-Floss," is sometimes used in dry cleaning.

What type of detergent to employ, where and how to use it, are all specified in the company's manual, the details of which each employee must know.

From cleaning ash trays to engine housings, each worker can tell by his check list exactly what to do next and the job proceeds on a fast and well organized schedule until the "O. K." signal is sounded.

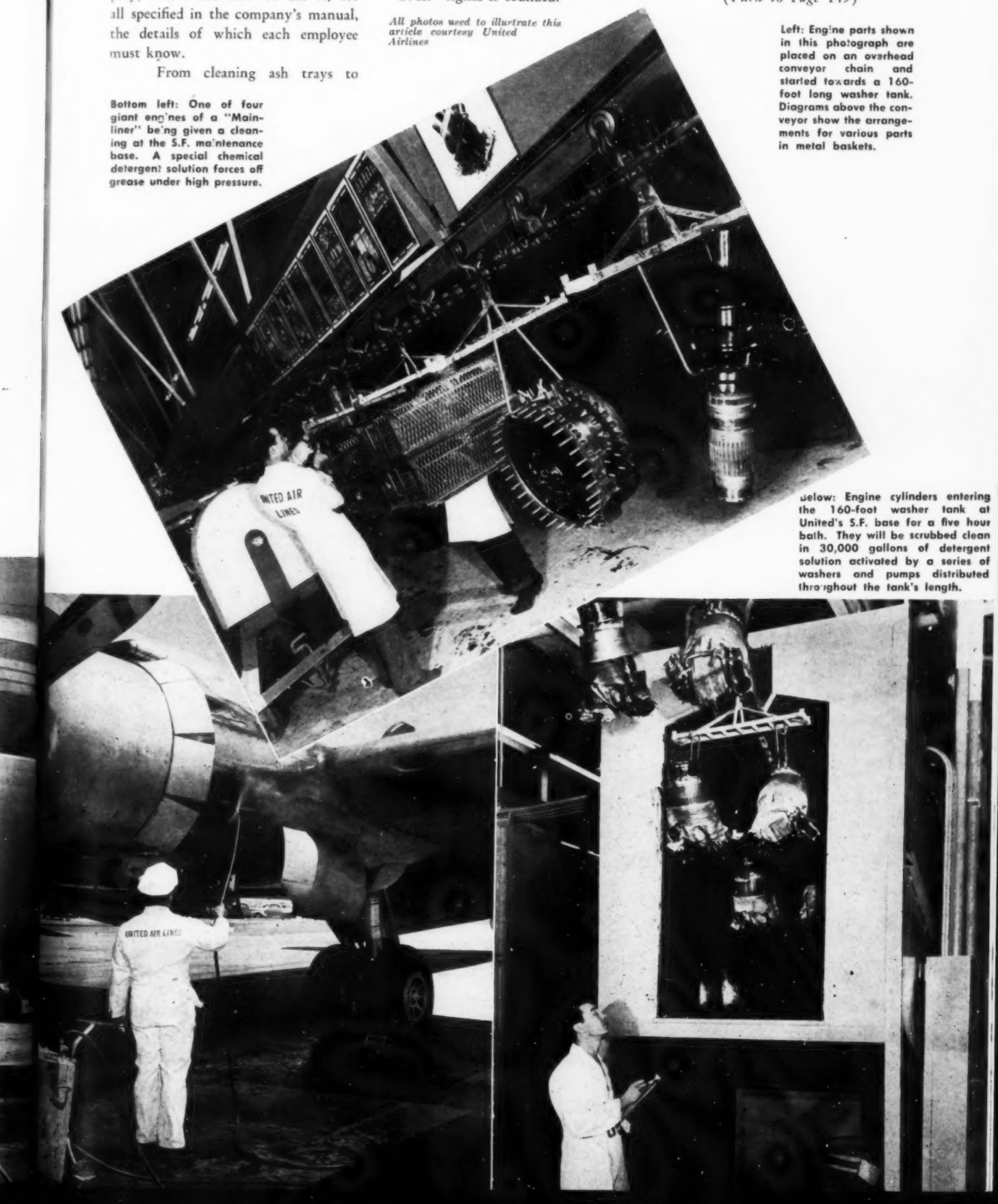
Planes flying in the stratosphere at 15,000 feet altitude or more do not pick up much grime, the experts have learned. Over big cities,

(*Turn to Page* 149)

All photos used to illustrate this article courtesy United Airlines

Bottom left: One of four giant engines of a "Mainliner" being given a cleaning at the S.F. maintenance base. A special chemical detergent solution forces off grease under high pressure.

Left: Engine parts shown in this photograph are placed on an overhead conveyor chain and started towards a 160-foot long washer tank. Diagrams above the conveyor show the arrangements for various parts in metal baskets.



Below: Engine cylinders entering the 160-foot washer tank at United's S.F. base for a five hour bath. They will be scrubbed clean in 30,000 gallons of detergent solution activated by a series of washers and pumps distributed throughout the tank's length.

PERFORMANCE TESTING OF DISHWASHING DETERGENTS

By Dr. Samuel Machlis and Edwin B. Michaels
York Research Corp.

IN recent years the detergent industry has shown an ever increasing acceptance of the idea that nearly every cleaning job must be confronted as potentially different in important respects from all others. This attitude has been reflected in the sizable growth of specialty products for widely divergent cleaning problems. Consequently, and as recent literature (1) suggests, the detergent chemist must give careful consideration not only to the soil, but the surface as well, if the proper detergent is to be selected for a specific cleaning job. Thus, it is well known now that many detergents which are exceptional for wool cleaning are disappointing as cotton detergents and that good machine dishwashing compounds are not effective cloth detergents.

The textile industry, probably more than any single group, has made the most rapid advances for evaluating all the variables concerned in selecting the proper detergent for their processes. For their purpose, use of standard soil wool and cotton cloth in a "Launder-Ometer," together with a Reflectometer for measuring detergency values, has proved a fairly reliable method of evaluation (2) (3).

As technical consultants to the American Hotel Association, our laboratory was faced with the necessity of setting up performance acceptance standards for proprietary machine and hand dishwashing compounds. A simple, speedy, yet effective method of good reproducibility was needed, by which a large number of products could be readily studied and which could be related to the various soils common to dishwashing. All the evaluation work that has been done to date in the dishwashing compound field in some respect fell short of what could be considered a suitable method. The use of glass slides (4) (5) (6) (7), a technique most nearly suitable for laboratory performance testing, involved very careful soil preparation, specially constructed washing devices and gave results lacking good reproducibility. In addition, the number of samples of material which could be tested at one time is severely limited. The work of the textile people in utilizing the "Launder-Ometer" was appealing, but no successful attempts to recast it as a method for dishwashing compound evaluation have been reported. However, the recent commercial development of glass cloth, specifically glass wicking, provided a material of interesting possibilities for use in "Launder-Ometer" work.

Glass wicking is a material closely related to glasses and dishes. It presents an unusually large surface area of uneven nature, giving a closer approximation to actual soil-surface conditions encountered in diswashing than the conventional microscopic glass slide. Moreover, glass wicks are readily soiled with a lampblack or India ink indicator, permitting the use of a Reflectometer for measuring the degree of detergency. At the same time it does not present any special problem for the application of grease or protein-carbohydrate soils. Preliminary work with the "Launder-Ometer" indicated that the use of glass wicking is practical and would solve our problem by providing a quick method of detergent evaluation for both hand and machine dishwashing compounds while utilizing equipment common to most laboratories. This technique, known as the York Dishwashing Detergent Evaluation Method, is being used by the American Hotel Association as the basis for the acceptance of proprietary dishwashing detergents. The technique is described in detail below.

Method

Materials: Glass wicking, 1⅜ inches wide, resin-free, was obtained from Raybestos-Manhattan, Inc., Manheim, Pa. As the wicks still contain a grease coating, it is first removed with acetone, followed by thorough rinsing and drying. The samples are prepared by cutting the wicking into 3 inch strips and, to prevent unraveling, four wire staples are put in the wicking, two each at the top and bottom near the side extremities parallel to the warp.

Soils: A standard grease soil and standard protein soil were developed, comprising the following ingredients.

(a) *Grease Soil*
5.0 grams Lampblack (Grinders #2)
37.5 grams Hydrogenated Fat (Bridges Chemical Co. Tallow #600)
125.0 grams "Nujol"

Soiling material is prepared by adding 5cc of the grease stock paste to 95cc of carbon tetrachloride.

(b) *Protein Carbohydrate Soil*
5 grams Dried Whole Egg (Mullins)
5 grams Flour (Pillsbury)
50 grams Evaporated Milk (Carnation)
5 cc India Ink (Higgins)
550 cc Distilled Water

This is mixed in a Waring blender, but just prior to use 15cc of NH_4OH is added to increase the wetting of the wick.

Application of Soil: The wicks are dipped in the soil solution and allowed to drain air-dry while hanging vertically. The slight drainage proved uniform and showed no more than two reflection units difference from top to bottom. The protein soil received an additional 16 hours drying at 55°C.

Equipment and Procedures: An Atlas "Launder-Ometer" is used as the washing device and is maintained at 140°F for machine dishwashing and at 100°F for testing hand dishwashing compounds. In every case ten standard ⅜ inch rubber balls were placed in

the pint Mason jars to insure proper agitation. All tests were of 15 minutes duration. After washing and removal from the Mason jars, the wicks are given a quick rinse in a bowl of water of similar hardness to the wash water, and hung up to air dry. Four reflectance readings (two on each side) were taken and averaged, using a Model 610 Photovolt "Reflectometer." Hard water was obtained by adding calcium chloride and magnesium sulphate in a ratio of three to two, to give 100 ppm, 300 ppm and 450 ppm of water hardness expressed as calcium carbonate.

Laboratory Data

Soil Pick-Up: To check the amount of soil pick-up on each wick, a series of 35 wicks was weighed and dipped into grease soil, air-dried and reweighed. Reflectance readings were taken on the soiled wicks and average deviations calculated. As summarized in Table I, good uniformity of pick-up was indicated by this method.

Validity of Technique

IN order to check the validity of the detergent cleaning process, a series of soiled wicks were cleaned with TSP, TSPP, sodium metasilicate, soda ash and borax. To check the relationship of the reflectance readings with the actual grease loss, extraction of the grease, after detergency, was made with carbon tetrachloride in "Soxhlet" extractors. Results reported for each detergent are averages of five samples.

Comparison of the grease content loss through detergency, as indicated by the carbon tetrachloride extraction, shows that TSP and TSPP reflectometer readings have good relationship with the grease content. To a lesser degree this was also true for sodium metasilicate. With soda ash and borax more grease was lost than would be indicated by the reflection readings. However, the dispersion of lampblack as well as grease emulsification are involved in the reflectance readings, whereas only the amount of grease lost is obtained by the "Soxhlet" extraction. This is more significant than grease values alone.

The ability of TSP, TSPP and soda ash to remove the protein-carbohydrate soil from the glass wicks was tested at 100°F (hand dishwashing temperature) and at 140°F (machine dishwashing temperature). As shown in Table III above, the order of detergency of these three compounds is related to their ability to remove grease soil (see Table II). The effect of higher temperature, even at lower detergent concentration, markedly increases the detergency ability of these compounds.

TABLE I

Indication of Uniformity of Grease Soil Pick-Up on Glass Wicking

Wicks	Average Add-On Weight	Average Deviation	Average Reflectance	Average Deviation
1-5	0.113 grams	±0.008 gms	17	±0.9
6-10	0.116 grams	±0.005 gms	18	±1.3
11-15	0.115 grams	±0.005 gms	18	±1.3
16-20	0.119 grams	±0.002 gms	17	±1.5
21-25	0.111 grams	±0.001 gms	17	±1.0
26-30	0.114 grams	±0.007 gms	17	±1.0
31-35	0.117 grams	±0.004 gms	17	±0.9
Average	0.115 grams	±0.005 gms	17	±1.1

TABLE II

Standard Grease Soil Detergency Comparison by Reflectance and Grease Weight

(Grease Soil 0.2 Percent at 140°F)

Detergent	Percent Detergency (By Reflectance)	Average Deviation	Percent Grease Removed
TSP	19	±1.3	18
TSPP	50	±1.2	46
Metasilicate	23	±1.3	31
Soda Ash	9	±0.9	21
Borax	2	±1.8	8

TABLE III

Standard Protein-Carbohydrate Soil Removal

Detergent (Av. 3 samples)	Percent Detergency (0.3 percent at 100°F)	Percent Detergency (0.2 percent at 140°F)
TSP	15	47
TSPP	26	73
Soda Ash	11	21
Proprietary Cmpd. A	—	58
Proprietary Cmpd. B	—	58
Proprietary Cmpd. C	35	—
Proprietary Cmpd. D	20	—

TABLE IV

Comparative Detergency Values for Separate Experiments

(0.2 percent at 140°F)

Detergent	Exp. #1	Exp. #2	Exp. #3	Exp. #4
TSP	14	14	17	19
Soda Ash	9	8	9	9
TSPP	48	53	50	48
Proprietary Cmpd. #1	37	31	32	—
" #2	52	50	52	51
" #3	48	45	44	45
" #4	18	16	19	24
" #5	39	42	42	39
" #6	28	27	25	29
" #7	20	19	15	18
" #8	49	46	50	50

Reproducibility of Values

TO check the reproducibility of detergent values, similar experiments were conducted on different occasions during this study. The data are collated in Table IV and indicate excellent reproducibility of results.

Further checks were made by comparing some of our data with experiences of other workers in the field. As noted in Table V, a similar ratio

TABLE V

Comparison of Detergency Values

	York	Walter (Photometer)	Walter (Lumetron)	Norris & Ruchhoft
Soda Ash	9	40	27	32
TSP	17	74	69	64
Borax	2	16	16	0
Metasilicate	23	—	—	41

of detergent values for soda ash, TSP, borax and sodium metasilicate was evident. Our values were obtained using a 0.2 percent detergent concentration at 140°F for 15 minutes. Walter (7) and Norris & Ruchhoft (6) used 0.3 percent concentrations at 140° for three minutes. All figures are percent detergency.

Testing Commercial Products

A PORTION of our data obtained in the evaluation of commercial machine dishwashing compounds is reproduced in Table VI. While a large number of products proved satisfactory for soft water operation, a surprisingly large number were inefficient as hard water detergents. In our work of evaluation of proprietary compounds for the American Hotel Association, not reported in this paper, the technique of using glass wicking was modified to evaluate other soils such as lipstick, as well as to measure the redeposition of these soils on clean wicking.

Extensions of these studies are underway for the purpose of obtaining a soil load factor for any dishwashing detergent. This will permit evaluations not only of the ability of a detergent to clean dishes satisfactorily but how many dishes can be cleaned, thereby, giving some indication of the unit cost of the detergent per dish.

Summary

The York method, herein described for the evaluation of hand and machine dishwashing compounds, has proven a successful approach for laboratory screening of these types of detergents. The salient facts of the method are:

1. Glass wicking, rather than the conventional microscopic slides, as the material to be soiled.
2. An Atlas "Launder-Ometer" as the washing device.
3. Measurement of detergency with a "Reflectometer."
4. Simultaneous testing of 20 samples in hard or soft water with standard grease or protein - carbohydrate soil.

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TABLE VI

Detergency Testing of Proprietary Dishwashing Compounds

(Grease Soil 0.2 percent—140°F for 15 minutes)

Proprietary Compound	pH	% Detergency (H_2O 100 ppm)	% Detergency (H_2O 300 ppm)	% Detergency (H_2O 450 ppm)
# 9	11.2	45	26	15
#10	10.8	47	13	11
#11	9.8	45	10	3
#12	11.8	24	5	11
#13	10.1	48	56	49
#14	11.2	47	39	35
#15	11.4	17	4	7
#16	11.3	52	30	17
#17	11.3	18	2	5
#18	10.0	49	56	48
#19	11.4	28	22	12
#20	10.1	32	26	10
#21	11.4	48	21	12
#22	11.5	41	45	11

Acknowledgements

The authors wish to acknowledge the generous cooperation of Raybestos-Manhattan, Inc., Manheim Pa., who provided the original glass wicking.

The authors wish also to acknowledge the technical assistance of Beatrice Tabachnick and John Talbott, whose work on all phases of the project aided materially in its success.

SYNTHETIC GLYCERINE

(*From Page* 38)

on any present-day cost analysis. However, since the production at this time is economically profitable, it will very likely also be economical at other levels as well and this should be looked upon as a permanent source of supply.

This view may be disconcerting to the soaper, who has always dreaded the day when he would not be able to find a buyer for his by-product. In fact such conditions have occurred periodically in the past due to an influx of new type organic synthetics which displaced some uses for glycerine, or to a general curtailment of business which limited outlets. However, glycerine is, and probably will remain, one of the most common industrial necessities. Its edibility, hydroscopic properties, odor, color and natural sweetness extend its use literally to hundreds of applications in all fields. Its chemical reactant powers make it useful as a base for emulsifiers, new type edible fats, and in plastics. Its nitro derivative is the basis of dynamite and cordite powder. During a war these uses all combine to make it a very important chemical, with its recovery and allocation under strict regulation. Late developments in the recent war still further increased its use as a propellant and it is likely that any future conflict would see its use multiplied many times.

The industrial and domestic use of glycerine will probably require more than the total 125,000 tons annually produced from soap and fat splitting operations in America.

SOAP PLANT OBSERVER

By John W. McCutcheon



CMC continues to draw considerable interest in the detergent field. There are three producers,-Hercules Powder Co., E. I. duPont de Nemours & Co. and Wyandotte Chemicals Corp. supplying grades of varying purity and viscosity. One chief characteristic of CMC is that it stabilizes the soil-detergent-water emulsion so that redeposition of dirt is avoided in the washing process. On hard-to-wash cottons, the synthetic detergents are not as effective as soap. CMC gives them a lift which will well bear close investigation by producers of synthetics. Several brands, retail and industrial, have incorporated this material with marked success. Approximately five to eight percent CMC on the basis of active detergent has been mentioned in the literature as satisfactory.

Another interesting characteristic of CMC is its foam stabilizing power. This is helpful in shampoos and other preparations, particularly where synthetics of low foam stability are employed such as the alkyl aryl sulfonates. Along the same line, methyl cellulose, manufactured by Dow Chemical Co., is attracting considerable interest for use as a foam stabilizing agent. Its insolubility in hot water renders it unsuited for high temperature laundry work as a soil suspending agent.

* * * *

Devices for insuring full packages have always been a prominent feature of any soap flake or powder packaging line. These often take the form of a boot which drops into each package as it passes. If the outage is greater than a predetermined level, it trips a mechanism which prevents sealing, re-routes the package or otherwise identifies it for removal. Sometimes the package passes over a scale which likewise causes some trip reject mechanism to work if it is over or under a desired weight. A recent device noted is unique in its simplicity. After the package has passed through the top sealer, the conveyor belt is elevated for a short period of a foot or so during which time the package passes along free. An air jet fastened at this point blew out any partly filled or unfilled package. This would hardly take the place of the more positive methods employed above, but at least it would provide a double check against the possibility of an empty or only partially filled carton from passing through production.

* * * *

Packaging methods are becoming more and more refined in their application and it pays to review modern methods periodically to see if improvements can be made. It is common practice now to carry variable sized containers from half a dozen products on lines hundreds of yards along ceiling-suspended or pit conveyors to a common universal sealer and thence direct to storage. A variety of stop and go safety devices prevent jamming much more efficiently than if an operator were stationed at each intersection. Careful attention should be given the location of the conveyor used to take the material from the packaging machine. It should hold the box at the exact level and angle for ease of filling, by dropping. It should have a stop to prevent drift when partly filled. It should be released onto the main causeway with practically no effort. If you are stapling the bottom and sealing the top, consideration should be given to the purchase of a top and bottom sealer which eliminates this first operation entirely. After the container is filled, 100 percent efficiency is not obtained if it has to be retouched in any way until it is delivered to storage. The type of conveyor used must be developed to suit the individual needs and in many applications will involve combinations of several types, such as belt, roller, universal roller, portable roller chutes, etc. When the efficiency of container handling is up for overhaul, it is well to review also the type and style of the container itself. One manufacturer recently reported a saving of up to 20 percent of fibre board by redesigning the container to open on the short side. The saving was in the reduction of flap overlap.

* * *

Synthetic detergents are still receiving wide attention in the industry. Market surveys for 1948 show a continued steady climb of users in all hard water areas. Production figures from government reports for 1947 still are not yet available, but the tentative figure of 700,000,000 lbs. basis of 30 percent active, is considered close and 1948 may be considerably higher. Leading retail brands remain in the hands of the large soap manufacturers. Two being added to the list are Colgate-Palmolive-Peet's "FAB" and Lever Bros.' "Surf." An interesting development over the past year has been the increased number of intermediate compounds available for sulfonation or condensation to detergents. The alkyl aryl hydrocarbons lead the field,—one of the oldest being Sharples "Neolene" series. Also Hardesty Chemical Co's "Harcol," and Shell Chem. Co's alkylated aromatic. Sinclair Refining Co. also had one pilot plant stage, but have withdrawn it from the market. In addition, the higher alcohols are available for sul-

(*Turn to Page* 151)

ROSIN in SOAP

By John R. Skeen
Market Research Department
Foster D. Snell, Inc.

THE commercial history of rosin has been both long and important. For many years it has been a significant constituent particularly of laundry soaps. In the late 30's, rosin so used amounted to nearly seven percent of the total fats and oils consumed in the soap industry. The greatly curtailed supply of soft oils caused by the war presented problems in soap making by 1943 which were ameliorated by the availability and usefulness of rosin. With the end of hostilities, soft oils were obtained in constantly increasing amounts. This factor, together with the competition offered by tall oil, appears to have reduced the present demand for rosin as a soap ingredient to the lowest level of record.

Of the annual consumption of rosin during the period 1934-37, nearly a quarter was used in soap. This share decreased steadily in the next three years. The trend was reversed thereafter because of the greater sale of soap induced by the war and particularly because imports of palm and lauric acid oils practically ended in 1942. As rosin can be used interchangeably with foots and soft oils to soften soap otherwise too hard, it was soon in demand as an extender and substitute. In 1943, more was incorporated in soap than ever before and manufacturers were required by the provisions of War Food Order 86 to increase the rosin content of their products. Rosin stocks then depleted rapidly and the order was terminated in June 1944. To direct the limited supply to the more essential military and civilian uses, the War Production Board early the next year issued order M-387. The consumption of rosin in civilian soap was thereby limited to 25 percent of the corresponding quarter of the year before. With the end of the war, the military requirement for soap rapidly diminished while the restrictions relating to civilian production remained in force. Soap sales, therefore, dropped to 87 percent of the previous year although demand had not abated. Not until early 1946 were the quota restrictions rescinded and rosin once more made freely available.

The naval stores industry produces rosin along with turpentine, pine oil, rosin oil and spirits, pine tar and pitch. There are two major processes. The living longleaf or slash pine is "chipped" and the exuding solution of rosin acids (mostly abietic) in turpentine is collected and distilled. The pot residue is filtered, packaged in drums and sold as gum rosin. Wood rosin derives from the dead cutover wood and stumps of pine forests which contain about 20 percent extractable materials. The wood is reduced to chips, and rosin, turpentine and pine oil are extracted by a combination of steam distillation and solvent boiling in the range of naphtha.

The naval stores industry was, perhaps, the first established in this country and its products were employed in the construction and maintenance of wooden ships. It is said that turpentine was recovered in Maine in 1606. Two years later, the first cargo was sent to U.K.. By 1650, this industry was well established in New England and extended to North Carolina upon the settlement of that colony a century later. Production began in Georgia and Florida a hun-

ROSIN: DOMESTIC SUPPLY, CONSUMPTION & PRICE[1]
unit: 1000 drums of 520#, net[2]

April-Mar 31[3]	Consumption[4] (App. Dom.)	Production by Source[5] Total	Gum	Wood	Imports[6] (total)	Exports[7] (total)	Stocks[8] (period end)	Consumption in Soap M drums[9]	% consumption[10]	Soap Share[11] % of Fats & Oils	Price[12] ¢/#
1934-35	899	1783	1387	396	2.0	846	783	227	25	7.3	1.77
1935-36	1030	1821	1361	460	1.8	963	613	223	22	8.0	1.77
1936-37	1070	1866	1286	579	1.9	879	530	238	22	8.0	2.50
1937-38	934	2030	1388	642	0.2	827	799	218	23	7.1	2.87
1938-39	921	2077	1466	610	0.2	657	1298	188	20	6.0	1.96
1939-40	1077	1814	1054	759	2.3	781	1256	188	17	5.5	2.12
1940-41	1052	1717	939	779	1.8	424	1499	153	15	4.3	1.77
1941-42	1485	1708	792	917	1.7	576	1148	201	14	4.7	2.42
1942-43	1191	1656	869	787	1.2	329	1284	191	17	5.0	3.22
1943-44	1502	1463	784	679	4.3	455	795	327	22	6.5	3.97
1944-45	1526	1318	692	626	17.2	216	388	324	21	9.2	5.61
1945-46	1267	1452	694	758	9.8	207	376	183	14	6.4	6.50
1946-47	1372	1720	753	968	0.2	501	223	153	11	4.5	7.43
1947-48	1344	1991	828	1163	0.3	592	278	144	11	3.8[13]	7.83

1 Unless otherwise stated, all values from *Naval Stores Report, Turpentine & Rosin*; 1936-April, 1947, compiled by Bureau of Chemistry & Soils, Bureau of Agricultural Chemistry & Engineering, and Bureau of Agricultural & Industrial Chemistry (New Orleans, La.); subsequent compilations by Bureau of Agricultural Economics (Washington, D. C.); all Department of Agriculture.
2 Early years reported in bbls. of 500# gross weight; crop years 1934-35 through 1937-38 coverted to drums of 520# net by multiplying by 0.90; other corrections are as reported in *Naval Stores Report*, 1945-46 Annual, issued May 14, 1946 (AIC-117).
3 Crop years as reported by the trade.
4 Production plus imports and change in stocks less exports—"Apparent Domestic Consumption."
5 Sulfate rosin is excluded in all values; this is a small, uncertain and irregularly reported item.
6 Pre-war imports were almost exclusively from Mexico.
7 Until 1940 exports to U.K., Germany and Canada accounted for 50-80% of the total; in 1940, Japan displaced Germany.
8 Exclusive of the residual "B" rosin.
9 See also *The Fats & Oils Situation*, Department of Agriculture, June 1947.
10 Rosin consumed in soap as % of Apparent Domestic Consumption.
11 Rosin consumed in soap as % of domestic consumption of fats and oils (exclusive of rosin) in soap products, including the Military, see (9); 1947-48 is only approximate and preliminary; error throughout may be ± 0.3%, absolute; see also *The Fats & Oil Situation*, June 1944 for period 1934-43.
12 Average rosin price including grades X, WW, WG, N, M, K, I, H, G, F, E, D, B; 1941—represents a revised series as reported in *Naval Stores Report*, May 18, 1948; other data are converted from a different price series as reported in May 24, 1944 issue; conversion from 280# gross weight bbls. to net pounds by multiplying by 0.39.
13 Approximate only, basic data not yet available.

dred years afterward and these states, together with Alabama, are the dominant centres of present production. The trade recognizes 15 color grades of rosin which vary in price and use although with considerable overlapping.

Extracting the components from dead pines is an old practice associated with the operation of charcoal pits. A thick tar was about the only product of value. Operations were sporadic and unorganized. However, this rudimentary procedure was extended to include steam distillation early in the Twentieth Century. The optimistic promotion of the idea was predicated upon the opinion that the naval stores industry would be short lived due to the extinction of the necessary pine trees. This error persisted for over twenty years. The collapse of the turpentine market in 1909 practically ended operations as the method produced no rosin. In this year, the extraction of wood began as it is known to-day. H. T. Yaryan, of sectional bookcase fame, established the first plant at Gulfport, Miss. The Newport Rosin & Turpentine Co. (now Newport Industries, Inc.) started three years later at Bay Minnette, Ala. and Mackie Pine Products and the Acme Products Co. followed in Louisiana. In 1920, Hercules Powder Co. built a plant at Hattiesburg and acquired the old installations of Yaryan at Gulfport and Brunswick Ga. Newport and Hercules are the leading forces in this industry to-day.

As late as 1914, upward of 80 percent of the domestic production of rosin was exported to U.K., Germany and North Europe. Following the rather disastrous Anti-Trust case of 1913, World War I just about completed the demoralization of the industry. In addition, the labor shortage at the time was added incentive for "the darky-with-an-axe" to do something else. Liquidations and consolidations rapidly followed and the industry emerged from the war in a strengthened position. The revival of exports re-established profitable operations at a time when new uses were rapidly appearing.

(*Turn to Page* 149)

Essential Oil Outlook

By Joseph A. Huisking
Fritzsche Bros., Inc.
New York

AFTER the rather chaotic and generally demoralized markets for those oils of especial interest to the soap maker, conditions are again approaching a more normal trend and in some instances we see a definite strengthening of prices from sources of production. With but few exceptions prices seem to have reached levels lending encouragement to early future buying.

Oil Bergamot—at present prices is attracting considerably more interest, because compared to prewar levels it seems reasonably priced.

Oil Citronella Ceylon—The present price is very close to replacement cost and indications are that the primary market is likely to continue very firm.

Oil Citronella Java—The quality of the postwar material has generally been poor and this is attributable in part to the fact that much of the oil is old and partly because it has been subjected to adulteration with fatty oils. This situation has had the official attention of the Netherlands Indies Government in Java and we hope that we may look for some improvement on that score. It has been our experience that the Honduras oil is more comparable to the prewar high grade Java. In recent weeks the Guatemalan Government Cooperative Association took a puzzling stand on exports from that country, announcing a price level approximately 30 percent above the figure quoted from Java. It has been rumored that the Guatemalan Government was attempting to negotiate with the Netherlands East Indies Government to establish fixed world prices. The success of such an attempt is very questionable.

Oil Geranium—This market has been influenced primarily by the very unusual and rather complicated situation in French and French Colonial markets and also the revaluation of the French franc, which has been extended to cover the French Colonial dependencies within the last few months. The system of barter prevailing with respect to French products has been a disturbing factor, resulting in prices for export often below production costs.

Lavender Oils—This market continues rather demoralized. So many artificial influences exist tending to obscure the actual statistical position of this and other French oils that a word of caution to consumers might be in order, because eventually there may be a rude awakening when these subnormal prices have provided too great a discouragement for production.

Oils Patchouly and Vetiver—Present prices seem low compared to inflated levels which prevailed during the war, but they have been tobogganing steadily and it is hard to visualize when or where this decline will terminate. On the basis of present replacement prices from source it seems not too illogical to suppose that still lower prices might prevail later on. We are inclined to believe, however, that with these, as with so many imported oils, it may only be a question of time when prices will have declined to such low levels that production is discouraged. Inevitably this condition would be followed by a sharp upward reaction.

Spanish Oils Rosemary, Spike Lavender, Thyme, etc.— Reliable information would seem to indicate that these are selling much below cost of production. This undoubtedly is the result of artificial trade and currency restraints, resulting in black market and barter operations.

NEW PRODUCTS PACKAGES



Above: New and larger package for brushless shave cream brought out recently by Lentheric, New York. Larger tube contains 3½ ounces. Retail price remains the same: 50 cents.

Iodent in redesigning the tubes, cartons and counter display cartons for its tooth pastes set out to have a completely harmonious selling unit. The new packing effort resulted in average sales increases of over 50 percent where the unit was displayed on retailers' counters. The packaging color motif for "Iodent" No. 1 is red, while No. 2 is done in blue.



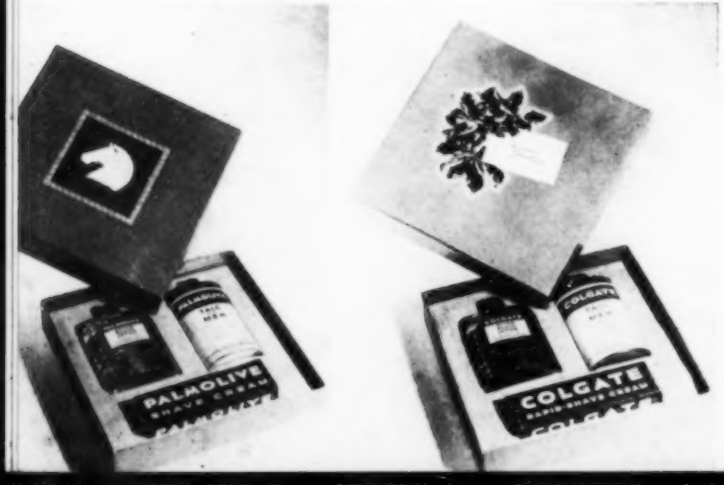


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Left: New, non-caking detergent being poured into household type, mechanical dishwashing machine is "Electra-Sol", designed and developed exclusively for the purpose by Economics Laboratory, Inc., St. Paul, Minn., who also make "Soilax". The new material is non-sudsing and contains a combination of polyphosphates. One heaping tablespoon of the new detergent is recommended for each dishwashing. "Electra-Sol" will be distributed through electrical appliance, hardware, department stores, supermarkets, variety chains and grocery stores.

Below: "Sparkle Plenty," the famous "Dick Tracy" character of the comics, has found her way into soap in a pure castile product being merchandised by Lightfoot Schultz Co., New York. The packing for "Sparkle Plenty" is in the form of a box that becomes "Sparkle's" own bed. The novelty will retail for 69 cents.

Two new Christmas boxes (below) were announced recently by Colgate-Palmolive-Peet Co., Jersey City, N. J. "Palmolive" gift box on left is finished in light leather brown tone set off by deep brown cameo-like panel. Box on right carries a spray of holly in natural color superimposed on a background of bright Christmas red. Both sets retail for 91 cents.







Above: "Nu-Ray", a new synthetic detergent of Robinson Brothers Buffalo Ammonia, Inc., Brooklyn, comes bottled four fluid ounces to retail for 35 cents. A cap full of the synthetic is said to be sufficient for one dishwashing. Bottle is said to contain enough of the material for 50 dishwashings. Label color scheme features blue background with yellow and white letters and trim, which carries out the firm's labeling theme.

At right: New "Dial" deodorant soap, which made its debut last month with a full-color perfumed advertisement in Chicago newspapers, is made by Armour & Co., Chicago.

→



Below: New "Dupli-Color" car polish is pigmented. Thus, it is possible for the polish to match the color of car. Made by Dupli-Color Products Co., Chicago, the new polish in 20 colors retails for 69 cents.





Above: One of the new Gourielli, Inc., New York, Christmas shaving sets for men featuring shave soap, bar of bath soap, talc and after shave lotion in luxurious fittings.



←

Left: New, heavy-duty, all-purpose detergent by Theobald Industries, Kearny, N. J., which was tested in Baltimore and Washington just before Labor Day.

→

Right: New Shulton packages for Christmas. Right foreground is "Desert Flower" soap, part of new line to be introduced in November. At left is Shulton's offering of two bath-size cakes of soap for men, while in center background is the new Shulton "Hand Aide" lotion and soap package.



Cowles Chemicals

DRYMET

the economical detergent silicate

★ *Write for* **DRYMET* FILE FOLDER** containing complete technical information.

★ **PROMPT SHIPMENTS — one package or a carload.**

DRYMET is anhydrous sodium metasilicate. On the basis of both Na_2O (alkalinity) and SiO_2 (silicate) it is more economical to use than other types of hydrated or anhydrous detergent silicates.

DRYMET contains no water of crystallization. It is readily soluble in all practical concentrations at all practical temperatures. DRYMET has a total alkalinity as Na_2O of not less than 51%. It yields a pH of 11.95 in a 0.1% solution.

CRYSTAMET* — Cowles Sodium Metasilicate, pentahydrate, is also available for immediate shipment.

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TRADE NEWS. . . .

Hollenbeck Joins Shulton

Robert A. Hollenbeck, a former executive of the Canadian subsidiary of Colgate-Palmolive-Peet



ROBERT A. HOLLENBECK

Co., Jersey City, N. J., with headquarters in Toronto, recently joined Shulton, Inc., New York, as general manager of the firm's Canadian business. He has served as vice-president and in other official capacities for the Canadian Toilet Goods Association. Mr. Hollenbeck was with Colgate-Palmolive-Peet Co. for many years, the last 12 of which he served in an executive capacity in their Canadian branch. In his new post he will make his headquarters at the Shulton office in Toronto.

General Soap to Build

General Soap Co., Ltd., Windsor, Ontario, Canada, is reported planning construction shortly of a $70,000 soap manufacturing plant.

Tooth Paste Prices Rise

Price increases on tooth paste produced by Colgate-Palmolive-Peet Co., Jersey City, N. J., and Bristol-Myers Co., New York, were announced during August. The advances ranged up to 10 percent. Prices were not raised on 10 cent sizes. Sharp increases in raw materials and freight costs were given as the reason for the higher schedule of prices.

Unilever Signs with Loewy

All packaging and retail planning for Unilever, Ltd., and Unilever, N. V., which comprises over 500 companies in 40 countries, will be handled by Raymond Loewy Associates, industrial designers, New York, it was announced recently following the signing of the contract in London. Combined with the concern's present program for Lever Brothers Co., Cambridge, Mass., the new business will make Loewy one of the largest and most inclusive firms in the packaging industry.

Bon Ami Earnings Down

Bon Ami Co., New York, reported a net income of $407,704 or $1.00 a share on 200,000 class B shares, as compared with $563,360 or $1.56 on class B shares last year.

Friden Bristol-Myers VP

John H. Friden, was recently elected vic-president in charge of the engineering division of Bristol-Myers Co., New York. He joined Sun Tube Corp., a subsidiary of Bristol-Myers in 1925, and was elected vice-president in 1928. In 1945 he was named executive vice-president.

Another unusual shot of Niagara Falls and cloud formation made by John J. Loughlin, well-known box camera artist whose pictures have won many prizes in photographic contests, illustrates the advertisement of Ungerer & Co., New York, on the front cover of this issue. Other Loughlin shots used in previous cover advertisements by Ungerer have also been the subjects of favorable comment. Mr. Loughlin is employed by the Chemists' Club, New York.

CIA Elects McCracken

C. K. McCracken, chief accountant for Procter & Gamble Co., Cincinnati, was recently elected presi-



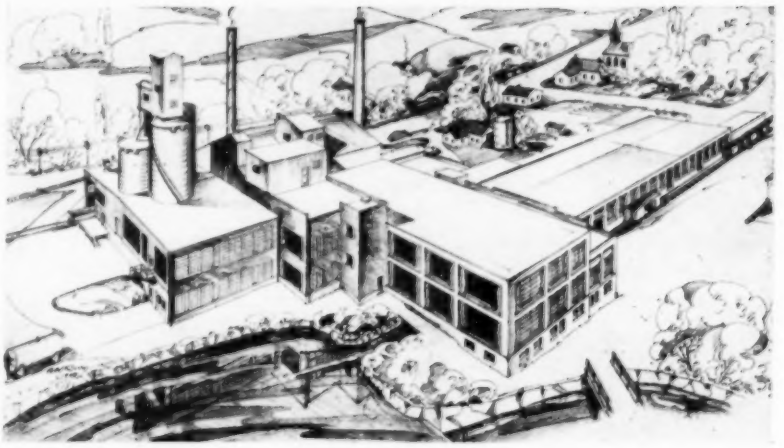
C. K. MC CRACKEN

dent of the Cincinnati Control of the Controllers Institute of America. The Institute is a national organization with 38 local chapters—called "Controls—throughout the U.S. The organization, which was founded in 1931, now has 3,172 individual members.

Coast Soap Plant Bankrupt

K. C. Working Chemical Co., Long Beach, Calif., which went into bankruptcy recently, has been put up for sale and L. Boteler, 1100 E. 5th St., Los Angeles 13, has been appointed trustee. The company's plant, which houses full facilities for making soap, was begun in 1946 and completed a year later. In addition to merchandise and supplies, including trade marks, trade names and good will, valued at $24,478,88, the plant is equipped with four, 10,000 pound, steel soap kettles, a chemical laboratory for control work, a 65 feet high spray drier of the concurrent flow type with a rated capacity of 2,000 pounds per hour water evaporated material type, and two steam jacketed crutchers of

2,500 pounds charge capacity. The two-story factory building itself is 220 by 70 feet and houses offices as well as plant. In addition there is a tank farm consisting of four steam heated steel tanks, two steel tanks without heating coils and one liquid caustic tank. There is a garbarge grease rack with facilities for unloading and cleaning garbage grease and transferring it to the plant. The property on which the plant is located is 327½ x 645⅔ feet, on which a heavy spur track railroad siding leading to the main building is located.



Above: The new, million dollar plant at Skaneateles Falls, N. Y., of Cowles Chemical Co., formerly Cowles Detergent Co., Cleveland. Opened recenty, it is equipped with up-to-date technological equipment for the manufacture, packaging and shipment of the company's line of heavy chemical detergent silicates, as well as specialized detergents for the commercial laundry, metal cleaning, food sanitation and other fields. Cowles also maintains plants at Lockport, N. Y. and Sewaren, N. J. The change in the firm's name, effected during August, was made because the company is producing other chemicals than detergents. The firm was founded in 1885.

Climalene Advances Two

Robert H. Marriott, since 1941 advertising manager of Climalene Co., Canton, O. cleaning materials firm, was recently named vice-president in charge of advertising. Mr. Marriott, who is also president of the newly organized Canton Advertising Club, joined the advertising department of the firm in 1935.

Another shift in personnel at Climalene involves Fred G. Barr, who has been appointed manager of the firm's new products division. Mr. Barr has been with the company since 1940, as director of the research laboratory and more recently in a sales capacity.

Retired Soaper Dies

Fred Dennison, 81, retired soap manufacturer, died Aug. 14 in Faxton Hospital, Utica, N. Y., after a prolonged illness. He had retired two years ago after operating the soap plant that turned out "Ideal Hand Soap" for 22 years. Mr. Dennison's wife died 24 days earlier. He is survived by a sister, Mrs. Mary Perrene of Camden, N. Y. and a brother, Daniel Dennison of Cato, N. Y.

P & G Sales, Earnings Up

Sales, earnings and taxes were reported higher by Procter & Gamble Co., Cincinnati, for the fiscal year ended June 30, 1948 than for the previous year. P & G had a net profit of $42,418,688, equal to $6.59 a common share for the fiscal year ended June 30, compared with $32,924,171 or $5.11 a share in the previous year. Net sales rose to $723,679,333 from $533,911,333. Taxes were also up for the year, totaling $42,820,296, as against $33,234,482 a year earlier. In making the annual report, R. R. Deupree, president, stated that although its raw material stockpile is smaller than in 1938, the dollar requirement is double what it was ten years ago. Inventory reserves were shown as $23,000,000, compared with $14,000,000 a year ago. In his report, Mr. Deupree stated that P & G's business appears stabilized as compared with the "wild fluctuations" of the past two or three years. Foreign operations of the company were reported to be on a sound basis and should continue so, barring major upheavals.

A. N. Jergens, II Marries

Andrew N. Jergens, II, president of Andrew Jergens Co., Cincinnati, was married recently to Miss Mary Roling of Cincinnati. The ceremony took place at Reno, Nev., Aug. 3. It is the first marriage for the bride, while Mr. Jergens was recently divorced from his first wife.

Kirk's Daughter Dies

Mrs. Gertrude Kirk Metzerott, 84, sister of Alexander C. Kirk, former U.S. Ambassador to Italy, and daughter of James S. Kirk, former president of Kirk Soap Co., now owned by Procter & Gamble Co., Cincinnati, died Aug. 5 at her home in St. Petersburg, Fla. Mrs. Kirk was the granddaughter of James S. Kirk, founder of the soap company bearing his name. She is survived by her brother, a daughter, two sons and a sister.

C-P-P Wins Contest

Colgate-Palmolive-Peet Co., Jersey City, N. J., was voted the winner in a nation-wide industrial popularity poll concluded recently by *Independent Merchant* magazine. Voters were asked to decide which manufacturer had served them best during the past few years and is therefore "entitled to the patronage of all independent merchants." A representative of C-P-P received a bronze plaque at a banquet held by the *Independent Merchant* in St. Louis, July 26.

Lueders Employee Dies

Arthur Littmann, in charge of the bottling division of George Lueders & Co., New York, died at his home on Aug. 3. He had been with the company 49 years and would have celebrated his fiftieth anniversary with the firm in December.

Apr.-June Soap Sales Off

Soap deliveries declined during the second quarter of 1948, as compared with the previous quarter this year and the comparable period last year, according to figures recently released by the Association of American Soap & Glycerine Producers, Inc., New York. Worth of soap delivered during the Apr.-June, 1948 quarter was also smaller than in the previous quarter, but above that of the second three months of 1947. Liquid soap sales showed a marked increase in the second quarter of this year, both as to amount and worth, compared with the Jan-Mar., 1948 quarter and were more than double the amount reported delivered in the comparable period of last year.

In the second quarter of this year, 631,308,217 pounds of other than liquid soap, worth $144,329,339 were shipped, as compared with 657,-911,104 pounds, having a worth of $166,112,248, in the preceding quarter. In the second 1947 quarter, 634,-674,816 pounds of other than liquid soap worth $144,058,421 were delivered.

Liquid soap shipments in the Apr.-June quarter of this year amounted to 939,518 gallons, valued at $1,260,850, as against 755,606 gallons worth $992,029 in the preceding quarter. Second quarter 1947 liquid soap deliveries were 597,000 gallons, whose worth was set at $926,-000.

For the first time sales of synthetic detergents, as reported by members of the AASGP, were included in the soap sales and delivery figures. According to the Association's report, 96,826,000 pounds were delivered, as compared with 69,034,-000 pounds for the first quarter of 1948.

New Baby Bottle Cleaner

A new brushless cleanser for baby bottles was announced recently by Pyramid Rubber Co., Ravenna, O., makers of "Evenflo" baby bottles. Coming in powder form, the new "Evenflo" brushless cleanser is packaged in one and two pound sizes. The latter retails for 98 cents, while the former sells for 59 cents. A tablespoonful in a gallon of hot water, in which the bottles soak for a few minutes, followed by rinsing, is the recommended washing procedure. The new cleanser will be sold in baby shops, drug and department stores.

Study Soap Plant Profits

The soap, cleaning and polishing industry is one of the majority of American industries making a higher return after taxes on stockholders' investments than they did before the war, according to a recent survey made by the Federal Trade Commission, Washington, D. C. The survey is based on the rate of return for more than 500 identical manufacturing corporations in 1940 and 1947. Eleven "soap, cleaning and polishing" firms were listed as having a rate of return after taxes in 1940 of 17.5; in 1947 the figure was 24.3.

Photograph below was taken at the recent luncheon honoring Elias D Stults, president of Welch, Holme & Clark Co., New York, who has been with the 110 year old firm 50 years. Friends and associates of Mr. Stults, who is at center of table on right, presented him with scroll and engraved silver water pitcher. The luncheon was held at the Waldorf-Astoria Hotel, July 30.

Chick New Silex Head

Louis S. Chick, formerly with Lever Brothers Co., Cambridge, Mass., was recently elected president and general manager of Silex Co., Hartford, Conn.

Evans' Son in Olympics

Ralph L. Evans, son of Dr. R. L. Evans, president of Evans Research and Development Corp., New York, placed second in the single-handed class at the Olympic yachting regatta held recently at Torquay, England. He is a senior at Massachusetts Institute of Technology.

Bristol-Myers Dividend

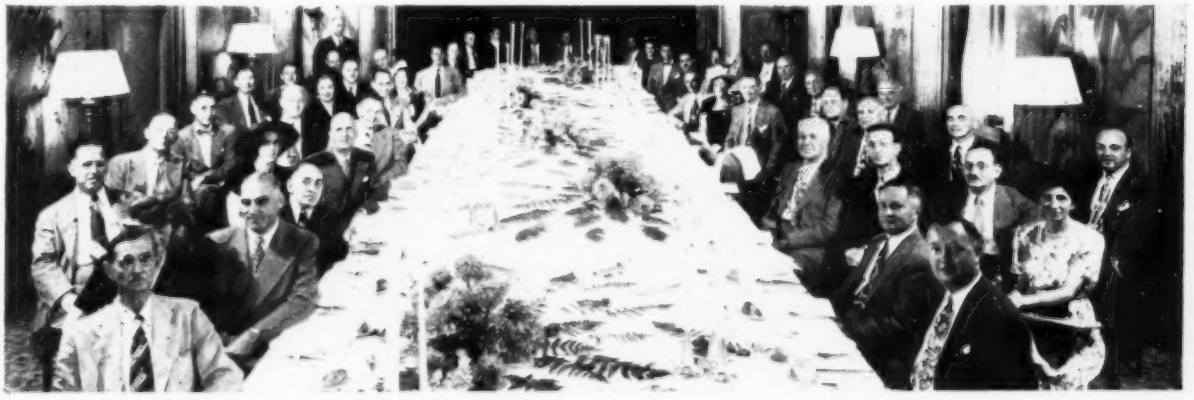
Directors of Bristol Myers Co., New York, recently declared an interim dividend of 40 cents per share of common stock, payable Sept. 1, to stockholders of record Aug. 16, 1948. Company earnings for the first six months of the year, ended June 30, amounted to $2,219,004, after all charges and reserves. This is the equivalent, after provision for dividends on preferred stock, of $1.51 per common share.

Monroe Joins Leon

Warren E. Monroe, formerly head of Roesling, Monroe & Co., New York, recently joined Leon Associates, New York, brokers in oils, chemicals, waxes and other raw materials.

A. E. Dubey, Jr., Dies

Alfred E. Dubey, Jr., 50, Newark, N. J., dealer in essential oils died Aug. 2, at St. Barnabas Hospital. He is survived by his wife, two stepchildren, his father and a sister.



ORONITE CHEMICAL COMPANY

REG. U. S. PAT. OFF.

THE NAME TO WATCH IN CHEMICALS

Even in Grease and Fats D-40 Provides High Suds— Good Detergency

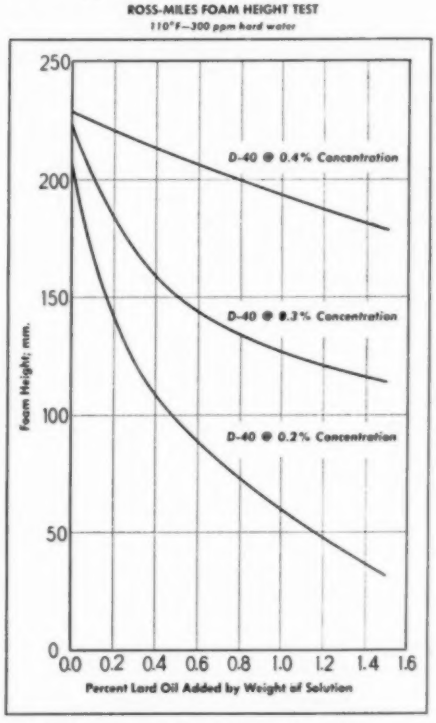
The lasting power of D-40's generous foam offers low cost, high efficiency performance by giving maximum grease suspension at minimum concentrations. Tests show that even under adverse conditions in the presence of large amounts of grease and fatty oils, D-40 "stands up." Its exceptional surface active properties make it extremely economical whether used as a cleaner by itself or blended with other materials.

Since D-40 is neutral, it is not harmful to delicate fabrics, it gives quicker "break" and easier rinsing.

For economy and outstanding performance, whether for compounding or use by itself, D-40 is superior. Get all the facts today from your nearest Oronite office.

TESTS PROVE D-40 PERFORMANCE

The Ross Miles Foam height test charted below shows the excellent sudsing ability of D-40 in the presence of high concentrations of grease in 300 ppm of hard water.



D-40 is compatible with alkalis, acids, soaps, and inorganic salts. Good foaming ability is shown with concentrations of D-40 as low as 0.2 percent.

This outstanding product can help you get better results in all cleaning and washing operations. Ask for D-40 — by Oronite.

ORONITE CHEMICAL COMPANY

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STANDARD OIL BLDG., LOS ANGELES 15, CALIFORNIA
30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK
600 S. MICHIGAN AVENUE, CHICAGO 5, ILLINOIS

Canada Ends Price Control

Removal of price control on soaps and abolition of subsidies on oils and fats were announced late in July by the Wartime Prices and Trade Board of the Canadian Government, Ottawa. Up to this time Canada had been paying a subsidy running between one and one-half and two million dolars a month on fats and oils used for soap and shortening. Ceilings were also removed on edible and inedible tallow, oleo stock, oleo oil, oleo stearine, hog grease, lard, shortening, whale, cottonseed, rapeseed, coconut, palm, peanut and soybean oils. The present action of the Canadian Government is part of its plan to decontrol prices gradually. Import controls continue as part of International Emergency Food Council committments. By its recent action Canada will discontinue government purchases of fats and oils. Since 1941 Canada has been purchasing fats and oils and allocating them for use in soaps and shortenings on a quota basis. Last spring the individuals were again permitted to resume buying fats and oils.

Lifting of the oil and fat subsidy will affect the price of soap. The subsidy content in the retail price has been approximately one cent per bar on toilet soap, one to two cents per bar on laundry soap, and three cents per medium size package of soap flakes or chips. With the discontinuance of subsidies on fats and oils, one of the last of the war-time and post-war subsidies was dropped.

As a result of the removal of ceiling prices on soap and the lifting of subsidies on vegetable oils, wholesale soap prices rose from 18 to 22 percent, with a detergent 10 percent higher than it had been. Retail price increases had not yet been set as we went to press. Procter & Gamble have raised their prices as follows: soap flakes, 22 percent; granulated soap, 20 percent; toilet soap, 18 percent; the detergent, 10 percent.

Machinery Makers Meet

The sixteenth annual meeting of the Packaging Machinery Manufacturers Institute will be held Tuesday and Wednesday, Oct., 12-13, at the Hotel Roosevelt, New York.

Douglas Joins Heyden

Charles V. Douglas, who resigned last month from Diamond Alkali Co., New York, after 26 years



CHARLES V. DOUGLAS

with the firm and its subsidiaries, has joined Heyden Chemical Corp., New York, as assistant to John P. Remensnyder, vice-president in charge of sales. Before joining Heyden, Mr. Douglas was New York district manager for Diamond, and prior to that was for nine years president of a wholly owned subsidiary, George Chemical Co. He is treasurer of the Salesmen's Association of the American Chemical Industry and is a member of the Chemists' Club of New York

Australia Soap Prices Up

Soap prices were raised in Australia recently. The advances came as a surprise to Australian merchants who were not notified of the price increase by soap manufacturers, but read about it in the newspapers. Two popular brands of toilet soap were upped about one cent, while household bar soaps rose about three cents. Washing powders in small size packages rose about two cents and larger sizes rose four cents.

New Washing Compound

A new washing compound designed for use in electric dishwashers was introduced recently by Economics Laboratory, St. Paul, maker of "Soilax." The new compound will be known as "Electra-Sol."

P & G Again Tops Ad List

Procter & Gamble Co., Cincinnati, once again in 1947, was the largest U.S. advertiser with an expenditure of $27, 912,122 according to figures compiled and released recently by the Magazine Advertising Bureau. P. & G. held top spot in 1946 with a figure of $24,656,164. Moving into third place, from sixth in 1946, was Colgate-Palmolive-Peet Co., Jersey City, N. J., with a 1947 advertising expense of $15,382,134. The year before C-P-P spent $10,739,053 on advertising. Dropping to sixth place in 1947, from fifth in '46, was Lever Brothers Co., Cambridge, Mass., with a total of $12,580,820. Another soap manufacturing concern, Swift & Co., Chicago, rose to ninth place last year with an exenditure of $10,129,604, as against $6,056,827 for the preceding year.

Other firms whose advertising expense in 1947 placed them in the leading 100 category were: American Home Products Co., New York, 12th with $7,667,680 in 1947, 8th in '46 with $9,572,125; Bristol-Myers Co., New York, 18th, $6,005,653 ('47), $7,145,060 ('46); Armour & Co., Chicago, 30th, $4,201,200 in '47, $2,185,671 in '46; Andrew Jergens Co., Cincinnati, 40th, $3,154,904 ('47), $3,354,238 ('46); Toni, Inc., Chicago, 51st, $2,468,965 ('47), $430,870 ('46); B. T. Babbitt, New York, 64th, $2,096,461 ('47), $2,-020,720 ('46); S. C. Johnson & Son Co., Racine, Wis., 74th $1,845,071 ('47), $1,818,685 ('46); Lehn & Fink Products Co., Bloomfield, N. J., 85th, $1,631,002, ('47), $1,791,585 ('46).

New Paint Remover

A new and improved paint remover, "Kelite Paint Lift," was introduced recently by Kelite Products, Inc., Los Angeles. By inhibiting evaporation, the new product is said to remove paint more thoroughly and completely than was heretofore possible. Said to be safe on all metals, the new paint lift is effective for outdoor use, because of its slow rate of evaporation. It contains no phenolic compounds, is non-toxic, non-corrosive and non-inflammable.

A Quality Product for Quality Soaps...

SOLVAY
TRADE MARK REG. U. S. PAT. OFF.

LIQUID CAUSTIC POTASH



FOR **Quality** PRODUCTS
SPECIFY
SOLVAY CAUSTIC POTASH

- 49-50% Liquid in tank cars
- 45% Liquid in drums
- EXCEPTIONAL PURITY
- LOW TURBIDITY

Solvay Caustic Potash is also available in Dry Forms.

SOLVAY Liquid Caustic Potash offers you exceptional purity and low turbidity for quality soap manufacturing. In addition, you get greater convenience because SOLVAY Liquid Caustic Potash is easy to handle and store. So for quality, convenience—and economy—get SOLVAY Liquid Caustic Potash. Available in tank cars and drums.

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FOR *BETTER* SOAP... **SOLVAY** CAUSTIC POTASH

Diamond Names Clark

Henry B. Clark, branch manager of the Boston sales office of Diamond Alkali Co., Cleveland, has been named New York manager succeeding Charles V. Douglas, who resigned. Charles L. Flaccus, Jr., has been appointed assistant branch manager at New York. Mr. Clark has been with Diamond since 1934. He was a salesman in the company's New Jersey territory until 1946, when he was placed in charge of the Boston office. Mr. Flaccus has been selling for Diamond since 1933 and in the last nine years has worked out of the New York office.

Emery Announces Changes

Emery Industries, Inc., Cincinnati, recently announced a number of changes in the makeup of its executive personnel. Robert F. Brown was named chemical sales manager to succeed C. W. Sampson, who has been appointed head of the newly formed export department of the company. John M. Archiable, previously plant superintendent, has been appointed works manager. He has been with the firm since 1930, when he was graduated from the University of Cincinnati with the degree of chemical engineer. He is succeeded as plant superintendent by Robert Bruch, also a chemical engineering graduate of the University of Cincinnati. Mr. Bruch will be assisted in his new post by Milton Shear, who has been with the company for 20 years.

"Kleen-Rite" Marketing

System Products Co., Chicago, is now packaging its "Kleen-Rite" rug and upholstery shampoo in small containers suitable for home use, in addition to its regular containers for the hotel, apartment house and public institution market. Distribution through variety stores will be handled by the Meyercord Co., Chicago manufacturers of decalcomanias, who will also carry a paint brush cleaner made by System Products Co. The shampoo and brush cleaner will be marketed through Meyercord's sales organization which contacts variety stores throughout the U.S.

Guenther on Radio

Dr. Ernest Guenther, vice-president and chief chemist of Fritzsche Brothers, Inc., New York, was guest interviewee on the radio program, "Headlines in Chemistry" presented by the American Chemical Society News Service over Station WNYC on Aug. 11. Dr. Guenther was interviewed on the subject of essential oils and their applications.

Solvay Building New Lab

A new million dollar research laboratory for the Solvay Process Division of Allied Chemical & Dye Corp., New York, is now under construction in Syracuse, N.Y., it was announced recently by H. K. Ferguson Co., who are in charge of designing and constructing the project. The new laboratory will be a two story building of steel frame and brick construction and will provide about 10,000 square feet of floor space. It is expected the new laboratory will be completed in about a year.

Eastman Buys Dist. Prods.

Eastman Kodak Co., Rochester, co-owner, recently acquired the share held by General Mills, Inc., Minneapolis, in Distillation Products, Inc., Rochester.

FMC Buys Stokes & Smith

The acquisition of Stokes and Smith Co., Philadelphia manufacturers of packaging and filling equipment for such dry products as soap granules, etc., by Food Machinery Corp., San Jose, Calif., was announced last month. The purchase marks the entry of Food Machinery Corp into the dry packaging equipment and set-up paper box machinery field. Under the arrangement, the Stokes and Smith operation will be established as an adjunct to Food Machinery Corporation's food canning and packing line.

To Sell Mathieson Item

Mathieson Chemical Corp., New York, recently concluded an agreement with Theobald Industries, Kearny, N. J., whereby the latter company has been appointed exclusive distributor in the U. S. for "Super Mafos Block," a patented fused product for use in commercial, institutional and industrial dishwashing machines. Territories not included in the agreement include the city of Boston and New York and its direct trading area. The arrangement is the first such in which a Mathieson product will be sold on an exclusive basis by an outside organization.

Milwaukee Journal Survey Shows Detergent Use Rise

Household use of synthetic detergents has more than doubled in the past two years, according to figures in the 25th anniversary number of the annual consumer analysis of the greater Milwaukee area, published recently by the *Milwaukee Journal*. "Vel," (Colgate-Palmolive-Peet) with a percentage of 45.6, moved into first place as the most widely used detergent, according to the 1948 survey. Second was "Dreft," made by Procter & Gamble, with 38.4 percent. "Dreft" occupied the top spot in 1946 and 1947. Lever Brother's "Breeze" was the third most popular product, going from less than one percent in the previous report to 10 percent in 1948. In addition to holding top honors among all synthetics, "Vel" led both soaps and synthetics as the most widely bought dishwashing product. Here, again, it went ahead of "Dreft," which occupied second place in the current and last year's survey.

Facts on soaps and detergents are contained in a section headed "Soaps," which contains information on packaged and bar soaps, synthetic detergents, cleansers, bleaches, steel wool cleaners, bluing and floor waxes.

Liquid and cream shampoos, tooth powder and paste, shaving soap and cream and brushless shaving cream are covered in the "Toiletries" section. In addition to facts and figures on 1948, the 25 year trends in tooth paste, tooth powder, brushless shaving cream and "regular" shaving cream are contained in supplements to regular sections.

Included in the consumer analysis for the first time since 1931 is a report on insecticides under the heading "Liquid Fly and Bug Killers."

IMPROVE YOUR COMPOSITIONS

STYRAX PURIFIED

This competitively priced, superior grade product is made from the crude resin by a special method of purification. A clear, amber liquid of uniform viscosity, STYRAX PURIFIED by FRITZSCHE is widely employed in soap manufacture for its fine fixation and very agreeable odor.

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RESINOID STYRAX

is recommended as a modifier and fixative for the scenting of better grade soaps, toilet waters, colognes, perfumes, dusting or body powders, etc., especially in lilac compositions and oriental blends.

STYRAX EXTRA

This interesting oil blends with such compositions as lilac, wistaria, hyacinth, lily, jonquille, jasmine, tuberose and fancy bouquets. It is used in extract perfumes for its very pleasant and distinctive odor. F.B. OIL STYRAX EXTRA is an outstanding product, well worthy of examination.

THESE three Styrax specialties are produced in our own plant under rigid supervision by the most modern and efficient methods known. Our unique position in this field enables us to offer you these materials freely and at moderate cost. May we send you samples?

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BRANCH OFFICES *and* *STOCKS: *Atlanta, Georgia,* **Boston, Massachusetts,* **Chicago, Illinois, Cincinnati, Ohio, Cleveland, Ohio, Dallas, Texas, Detroit, Michigan,* **Los Angeles, California, Philadelphia, Pennsylvania, San Francisco, California,* **St. Louis, Missouri,* **Toronto, Canada and* **Mexico, D. F.* FACTORY: *Clifton, N. J.*

C-P-P Research Changes

Dr. Arthur L. Fox has just been appointed director of research and development of Colgate-Palmolive-Peet Company. Dr. Fox formerly was director of research of the General Aniline and Film Corporation.

Dr. E. E. Dreger, research director of Colgate-Palmolive-Peet Co., Jersey City, N. J., since 1941, has been named vice-president in charge of research. He has been with Colgate since 1925. Dr. Dreger will make his headquarters in Jersey City.

Louis J. Zollinger Dies

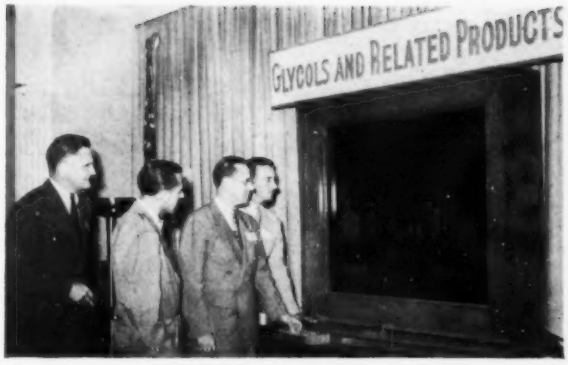
Louis J. Zollinger, 64, president of Tombarel Corp., New York, died Aug. 28, in Postgraduate Hospital, New York, following a heart attack two days earlier. He had been with Tombarel for about 11 years. He leaves his wife, three married daughters and six grandchildren.

Cies to Lever Post

The appointment of Ralph D. Cies, former assistant to the president of Rexall Drug Co., Los Angeles, as manager of market development for Lever Brothers Co., Cambridge, Mass., was announced early this month. Mr. Cies is a native of Oklahoma City and a graduate of Stanford University. He was a member of the faculty from 1938 to 1946. During the past two years he served as special assistant to Justin Dart, president of Rexall. In addition, Mr. Cies was a member of the company's management committee. He assumed his new duties with Lever on Sept 15.

R. D. CIES





Seen at one of the 19 exhibits at the third annual staff meeting of Wyandotte Chemicals Corp.'s research department at the Hotel Statler, Detroit, recently, were, left to right: Howard Roderick, manager, organic chlorine and calcium carbonates sales: Bert Cremers, vice-president in charge of sales, Michigan Alkali division; Dr. Thomas H. Vaughn, research vice-president, and Luke Reid, assistant to Mr. Roderick. The diagram is an electronically operated flow diagram of Wyandotte's glycol production. At the meeting, the 19 exhibits depicting various phases of the company's activities were arranged in trade convention style. E. M. Ford, president discussed Wyandottee expansion

4th Quarter Fats Allocation

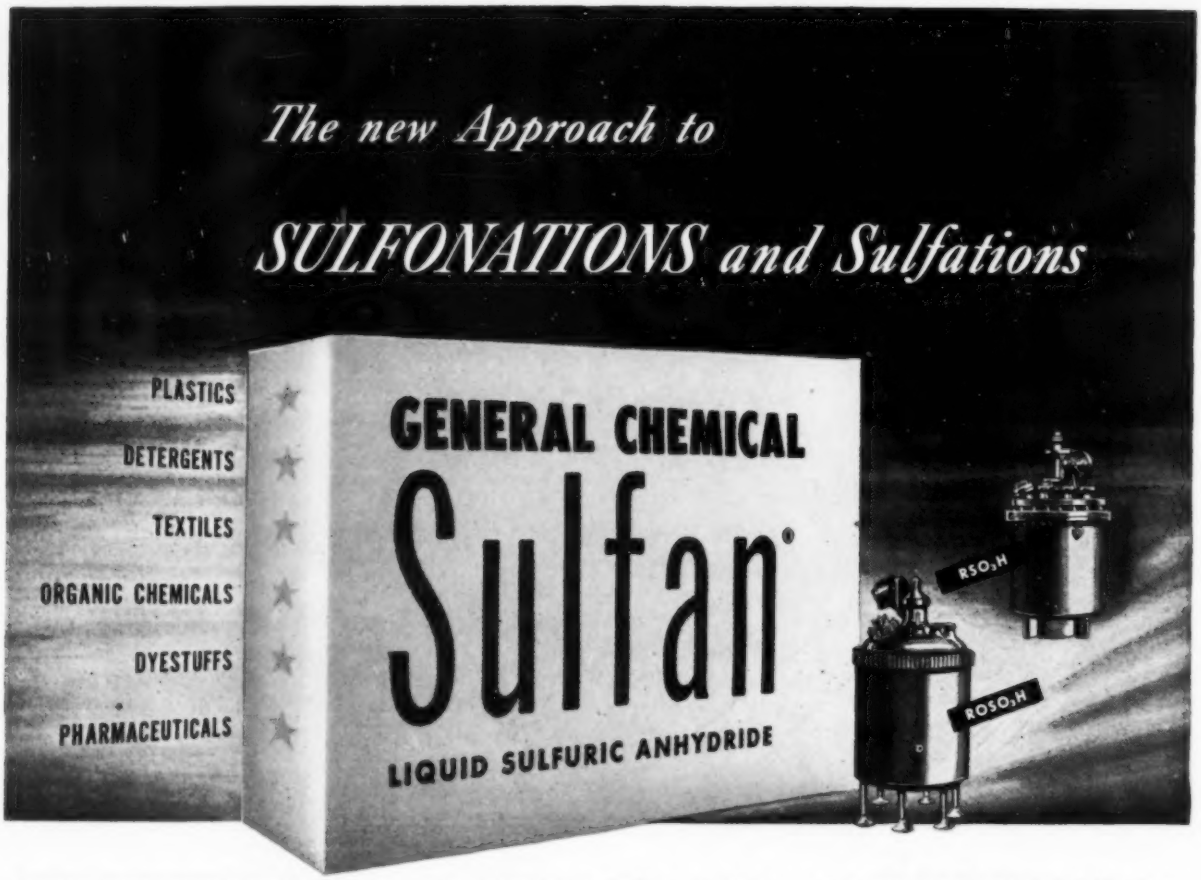
Export allocations of fats and oils for the 4th quarter of 1948 were discussed at a meeting in Washington, August 30, at which members of the industry advisory committee presented their views to the Fats and Oils Branch, Production and Marketing Administration, U.S.D.A.

Frank B. Wise of the National Renderers Association again urged, as he had at the previous quarterly meeting three months ago, that export allocations on tallow and grease be increased in view of what he described as a "tremendous surplus" of tallow and grease stocks. He indicated that while the U.S.D.A. estimates 3rd quarter disappearance of tallow and grease at 440,000,000 lbs., his own sources suggest that disappearance will be closer to 400,000,000 lbs., making an additional 40,000,000 lbs. of excess domestic stocks available for export. He cited U. S. Bureau of the Census figures to show that stocks of tallow and grease as of July 31, 1948, were 365,000,000 lbs., as compared with 286,000,000 lbs. a year previous, and 221,000,000 lbs. on July 31, 1946.

Andrew Federline, secretary of the Soap and Detergent Manufacturers Association, argued that present stocks are not excessive, and that while they may be above wartime minimums, they are by no means out of line when compared with normal pre-war stock levels. John B. Gordon of the Bureau of Raw Materials indicated that recent slack demand for tallow and grease from the soap industry is traceable to the summer vacation period of reduced plant activity.

AASGP Meets Jan. 26-27

The 22nd annual meeting of the Association of American Soap & Glycerine Producers, Inc., will be held at the Hotel Commodore, New York, Wednesday and Thursday, Jan. 26-27, 1949. In general, the 1949 meeting will follow the outlines of the 1948 meeting, which was the first two-day gathering in the history of the Association. One departure from previous years is in the meeting place. Because suitable accomodations were not available at the Waldorf-Astoria at the time the Association chose for its meeting, it was decided to convene elsewhere. The theme of next year's meeting will be the soap industry's contribution to the American standard of living. Following an Association business meeting on the first day, group discussions of technical and special problems of the soap industry will be held on the second day. Technical subjects to be discussed at group meetings are now being devised and assigned. In addition to speakers from the soap industry, a number of prominent speakers from outside the field will be heard. Social features, such as the luncheons, cocktail party and banquet, to be held on the evening of the final day of the convention again will be part of the 22nd annual meeting. James Reilly of Colgate-Palmolive-Peet Co., Jersey City, N. J., as he was last year, is convention chairman for the 1948 meeting.



Less than twelve months ago General Chemical Research introduced SULFAN—Stabilized Sulfuric Anhydride—to the Process Industries. Even in that short space of time, many using SULFAN have predicted it may well "rewrite the book on sulfonation and sulfation!"

Important among the many reasons for this belief is the fact that SULFAN provides Sulfur Trioxide in stable, easy-to-use liquid form for the first time in chemical history.

In sulfations as well as in both mono- and poly-sulfonations, it offers multiple advantages:

- Eliminates costly, time-consuming neutralization and washing steps.
- Shortens processing time.
- Produces salt-free products.
- Obviates waste acid disposal.

Already finding a place in the textile, dyestuff, detergent, pharmaceutical, plastics and general organic chemical industries, SULFAN may hold a rich potential for your operations, too. Write for samples or commercial quantities.

Special Technical Literature

Available on request on business letterhead.

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Reactions of SO_3—Comprehensive, selected abstracts and bibliography compiled by General Chemical Research.

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In Wisconsin General Chemical Company, Inc., Milwaukee, Wis.

In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver

BIDS AND AWARDS

QM Laundry Soap Bids

Among the bids received on various quantities of low titer, powdered laundry soap in a recent opening for miscellaneous supplies by the Army Quartermaster Corps., New York were those of: Armour & Co., Chicago, 294,000 pounds, 25.45 cents a pound and 98,000 pounds, 23.71 cents a pound; Kamen Soap Products Co., New York, 196,000 pounds, 19.38 cents a pound, 98,000 pounds, 18.37 cents, 98,000 pounds, 19.59 cents a pound and Spazier Soap & Chemical Co., Santa Monica, Calif., 196,000 pounds, 24 cents, 98,000 pounds, 24.75 cents. On high titer soap, the following bids were received: Armour & Co., Chicago, 825,000 pounds, 17.16 cents, 550,000 pounds, 17.26 cents and 275,000 pounds, 15.86 cents; Colgate-Palmolive-Peet Co., Jersey City, N. J., 550,000 pounds, 19.34 cents, 275,000 pounds, 19.84 cents and 275,000 pounds 20.26 cents; Gillam Soap Works, Fort Worth Tex., 550,000 pounds, 16.8 cents; Hershey Estates (Soap Div.), Hershey, Pa., 275,000 pounds, 15.85 cents; Kamen Soap Products Co., New York, 825,000 pounds, 22.87 cents, 550,000 pounds, 22.89 cents and 275,000 pounds, 21.78 cents; Chicago Sanitary Products Co., Chicago, 825,000 pounds, 23.125 cents, 550,000 pounds, 23.125 cents and 275,000 pounds, 22.375 cents; Spazier Soap & Chemical Co., Santa Monica, Calif., 825,000 pounds, 18 cents and 550,000 pounds, 18.75 cents; Stahl Soap Corp., Glendale, N. Y., 275,000 pounds, 16.68 cents; Swift & Co., Chicago, 825,000 pounds, 17.9 cents, 550,000 pounds, 17.9 cents and 275,000 pounds, 15.9 cents; Tennessee Soap Co., Memphis, 300,000 pounds, 15.22 cents.

P. O. Hand Soap Bids

The following bids were received in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C., on 15,000 cakes of grit hand soap: Colgate-Palmolive-Peet Co., Jersey City, f.o.b. Washington, 3.916 cents, 5 oz. cake; Day & Frick, Phila., f.o.b. Phila., 4.6 cents and f.o.b. Washington, 4.85 cents, 5 oz. cakes; Pioneer Soap Co., San Francisco, f.o.b. San Francisco, 7.8 cents, 8 oz. cake; Unity Sanitary Supply Co., N. Y. City, f.o.b. N. Y. City, 6.5 cents on 4¾ oz. cake.

P. O. Paste Soap Bids

In a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C., the following bids were received on 45,000 pounds of paste soap: Shaffer Bros. & Pal Mfg. Co., St. Louis, 9.6 cents a pound; Peck's Products Co., St. Louis, 10.2 cents; Unity Sanitary Supply Co., New York, 22 cents; General Soap Co., Chicago, 12 cents; Kerdan, Inc., Montgomery, Ala., 18 cents; E. F. Drew & Co., New York, 9.9 cents; Knoxall Corp., Indianapolis , 20.7 cents; R. M. Hollingshead Corp., Camden, N. J., 18.5 cents in steel drums, 17.5 cents in wood kegs; Chicago Sanitary Products Co., Chicago, 12.7 cents; Old Dominion Paper Co., Norfolk, Va., 19.98 cents; Chemical Manufacturing & Distributing Co., Easton, Pa., 13.5 cents; Harley Soap Co., Philadelphia, 9.3 cents; Davies-Young Soap Co., Dayton, O., 11.9 cents and Bri-Test, Inc., New York, 17.45 cents.

Treas. Soap Powder Bids

In a recent opening for miscellaneous supplies by the Treasury Department, Bureau of Federal Supplies, Ft. Worth, Tex., the following bids were received on 14,112 pounds of soap powder: Kamen Soap Products Co., New York, 5.4 cents; Chemical Mfg. & Dist. Co., Easton, Pa., 7.24 cents, packed in 112 pound fibre drums without liner; Cudahy Packing Co., Chicago, 10.4 cents, packed 75 pounds in paper lined keg; United States Soap Mfgrs., Philadelphia, 10.66 cents; Tennessee Soap Co., Memphis, 5.41 cents in 100 pound fibre drums; Hunnewell Soap Co., Cincinnati, 10 cents; Industrial Soap Co., St. Louis, 12 cents; Peck's Prods. Co., St. Louis, 7.5 cents; E. F. Drew & Co., N. Y. City 6.7 cents.

Sweeping Compound Bids

The following bids were received on 50,000 pounds of sweeping compound in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D.C.: John Shea Co., St. Lawrence, Mass., 1.75 cents a pound; American Excelsior Corp., Chicago, 2.4 cents; Dustbane Products Co., Chicago, 2.5 cents; Janitor Supply House Baltimore, 2.85 cents; Bird-Archer Co., Philadelphia, 12 cents; Michigan Sweeping Compound Co., Detroit, 2 cents; Larkin Soap Co., Teaneck, N. J., 2.95 cents; Sanitary Soap Co., Paterson, N. J., 2.25 cents; Mathers Lamm Paper Co., Washington, D. C., 2.5 cents.

Treas. Soap Powder Bids

Among the bidders on 15,000 pounds of soap powder in a recent opening for miscellaneous supplies by the Treasury Department, Bureau of Federal Supplies, Washington, D. C., were the following: Hunnewell Soap Co., Cincinnati, 8 cents; U. S. Soap Manufacturers, Philadelphia, 8 cents; E. F. Drew & Co., New York, 6 cents; Stevens Soap Corp., Brooklyn, 4.95 cents; Globe Grocery Co., South Boston, 18 cents; Swift & Co., Chicago, 5.52 cents; Chemical Manufacturing & Distributing Co., Easton, Pa., 4.74 cents; Kamen Soap Products Co., New York, 4.9 cents; Colgate-Palmolive-Peet Co., Jersey City, N. J., 5.75 cents, 100 pounds to a drum; Allen Burns Co., Buffalo, 7 cents; Wm. Messer Corp., New York, 7.43 cents, 112-pound kegs or in 200-pound containers or about 250-pound barrels; Tennessee Soap Co., Memphis, 5.49 cents.

Pioneer Soap Award

An award on 14,000 pounds of laundry soap was made to Pioneer Soap Co., San Francisco, in a recent opening for miscellaneous supplies by the Army Quartermaster Corps., Oakland, California. The Pioneer bid was 18.4 cents a pound.

Hydro-Mugal

Although originally presented as a substitute for Hydroxy-Citronellal this low cost product has proved to be much more than a mere substitute, excelling as it does in stability, type of odor and general effectiveness.

We are proud to offer Hydro-Mugal as an outstanding lily of the valley base

schimmel

schimmel & co., inc.
601 west 26th street
new york 1, new york

NEW TRADE MARKS

THE following trade-marks were published in the August issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of February 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

PAOS—This in upper case, extra bold, black letters for hand detergent. Filed June 27, 1946 by Paos Laboratories, Minneapolis. Claims use since Mar. 16, 1945.

CRISILITE—This in upper case, bold letters for spark plug cleaning abrasive. Filed July 29, 1946 by Southern Sales Service, San Diego, Calif. Claims use since July 1, 1934.

MILBAN—This in upper case, extra bold, letters for chemical compounds used as an anti-mildew agent. Filed Aug. 1, 1946 by E. I. du Pont de Nemours and Co., Wilmington, Del. Claims use since Oct. 18, 1943.

NYHOL—This in upper case, bold letters for phenolic derivative liquid used as an anti-fungus compound. Filed Dec. 28, 1946 by Master Mechanics Co., Cleveland. Claims use since Feb. 1940.

SUPERTONE—This in upper case, bold letters for insecticides. Filed Jan. 13, 1947 by California Spray-Chemical Corp., Wilmington, Del. Claims use since Nov. 27, 1946.

BEST & CO.—This in upper and lower case, extra bold, old English letters for hair shampoo. Filed Jan. 20, 1947 by Best & Co., Inc., New York. Claims use since 1882.

DEEDUST—This in upper and lower case, extra bold letters for an insecticide. Filed Dec. 17, 1945 by Clean Home Products, Inc., Chicago. Claims use since Oct. 22, 1945.

CASCO—This in upper case, bold letters for insecticides and fungicides. Filed Oct. 18, 1946 by Carrier-Stephens Co., Lansing, Mich. Claims use since Jan. 15, 1929.

INSOL—This in upper case, bold letters for insect repellent. Filed Nov. 15, 1946 by Chemical Research Products, Inc., East Rutherford, N. J. Claims use since Oct. 29, 1946.

BRIGHT SAIL—This in upper and lower case, script letters for liquid floor wax. Filed Oct. 17, 1946 by Great Atlantic & Pacific Tea Co., New York. Claims use since Feb. 16, 1946.

KLEER FLO—This in upper and lower case, extra bold, script letters for liquid solvents for cleaning of automotive parts and other metal pieces. Filed Jan. 25, 1947 by Practical Products Co., Minneapolis. Claims use since Apr. 22, 1943.

DI-CHLOR-MULSION—This in upper case, extra bold, black letters for insecticide. Filed June 2, 1947 by Woolfolk Chemical Works, Ltd., Fort Valley, Ga. Claims use since Sept., 1938.

The following trade marks are published in compliance with section 13 (a) of the Trade Mark Act of 1946. Notice of opposition must be filed within 30 days of publication and a fee of $25 must accompany each notice of opposition.

WEEDAR—This in upper case, medium bold letters for chemical preparations for exterminating weeds. Filed July 29, 1947 by American Chemical Paint Co., Ambler, Pa. Claims use since Dec. 28, 1946.

DRAX—This in lower case, extra bold, oversize letters for aqueous and non-aqueous wax emulsions. Filed Aug. 13, 1947 by S. C. Johnson & Son, Inc., Racine, Wis. Claims use since June 13, 1947.

SLUG-EM—This in upper case, extra bold letters for chemical composition in powdered form for killing snails and cutworms. Filed Aug. 22, 1947 by Destruxol Corp., Ltd., Pasadena, Calif. Claims use since Sept. 24, 1945.

BISCHOFF—This in upper and lower case, extra bold letters within a heavy rule design for preparations for the treatment of athlete's foot. Filed Sept. 4, 1947 by Ernst Bischoff Co., Ivoryton, Conn. Claims use since 1924 as to "Bischoff" and since Feb. 15, 1945 as to "Bischoff" and design.

HOLDEN—This in large and small, extra bold, black letters for chemicals for addition to salt baths for heat treating metal to clean salt baths. Filed Sept. 20, 1947 by A. F. Holden Co., West Haven, Conn. Claims use since Jan., 1933.

RENUZIT—This in upper case, extra bold, black, oversize letters for mothproofer and insecticide. Filed Oct. 9, 1947 by Renuzit Home Products Co., Philadelphia. Claims use since Jan. 2, 1947.

IRCO—This in upper case, extra bold, oversize letters for chemical compounds in liquid form for use as rust preventatives. Filed Nov. 4, 1947 by International Rustproof Corp., Cleveland. Claims use since Oct., 1932.

CHESEBROUGH—This in upper case bold letters for shampoos. Filed Nov. 13, 1947 by Chesebrough Manufacturing Co., Consolidated, New York. Claims use since 1870.

MAPRIL—This in upper case, extra bold letters with a crown like design over the letters "m" and "a" for oil shampoo. Filed Nov. 17, 1947 by Mapril, Inc., New York. Claims use since Aug. 13, 1946.

BESAR—This in upper case, extra bold, italic letters for shampoo. Filed Nov. 24, 1947 by Besar Products Co., Los Angeles. Claims use since Aug. 9, 1947.

KREML—This in upper case, extra bold letters for shampoo. Filed Dec. 5, 1947 by R. B. Semler, Inc., New Canaan, Conn. Claims use since 1911.

HARF—This in upper case, extra bold, oversize letters for hair shampoo. Filed Dec. 10, 1947 by Harf, Inc., Hilltown, Pa. Claims use since Sept. 15, 1939.

BIOFOS—This in upper case, medium bold letters for chemical toxicants having insecticidal and rodenticidal utility. Filed Dec. 10, 1947 by Monsanto Chemical Co., St. Louis. Claims use since Nov. 13, 1947.

SYNKLOR—This in upper case, extra bold letters for insecticides. Filed Dec. 12, 1947 by U. S. Rubber Co., New York. Claims use since July 3, 1947.

CLOSETMASTER—This in upper case, bold letters for volatile moth-proofing chemical in cakelike form. Filed Dec. 19, 1947 by Irwin-Willert Co., East St. Louis. Claims use since Oct. 15, 1947.

GREAT STUFF—This in upper and lower case, block type, open and shadow, script letters for automobile cleaner and polish. Filed Aug. 11, 1947 by Great Stuff Products, Inc., Minneapolis. Claims use since Jan. 1, 1942.

CROSS COUNTRY— This in upper and lower case, old English letters within swirling lines for hand soap. Filed Oct. 22, 1947 by Mark Cross Co., New York. Claims use since Jan. 1946.

CLUB—This in upper case, extra bold, stencil letters within a clover like design, superimposed on a background of dots for impregnated steel wool pads. Filed Oct. 10, 1947 by Club Aluminum Products Co., Chicago. Claims use since June 7, 1946.

MATCHLESS—This in upper case, extra bold letters within a diamond for cleaning. Filed Oct. 8, 1947 by Matchless Metal Polish Co., Chicago. Claims use since July 1884.

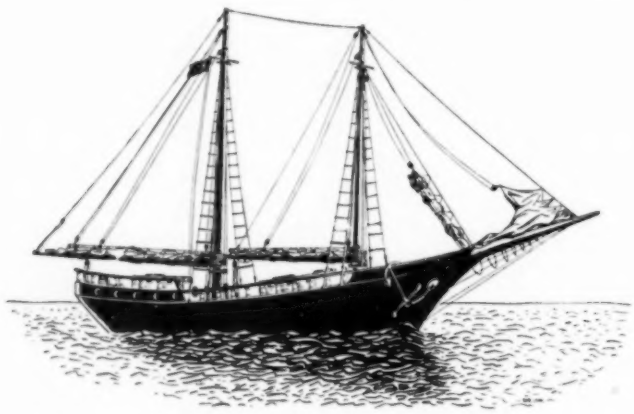
BURNSROUGE—This in upper case, bold letters for polishing and buffing compound. Filed Sept. 3, 1947 by Reed Burns Mfg. Corp., Brooklyn, N. Y. Claims use since Jan. 3, 1940 .

DETERGETRON—This in

W H&C Co INC

Est. 1838

- Olive Oil
- Neatsfoot Oil
- Coconut Oil
- Cottonseed Oil
- Palm Kernel Oil
- Stearic Acid
- Oleo Stearine
- Soya Bean Oil
- Castor Oil
- Sesame Oil
- Lard Oil
- Palm Oil
- Corn Oil
- Peanut Oil
- Grease
- Tallow
- Red Oil
- White Olein
- Fatty Acids
- Soap Colors
- Chlorophyll
- Soda Ash
- Sal Soda
- Talc
- Caustic Potash
- Caustic Soda
- "CEREPS"
- Superfat



Since the days of Trading Schooners

. . . dependable suppliers to SOAP MAKERS

VEGETABLE OILS	ANIMAL OILS	REFINED TALL OIL
COCONUT OIL	RED OILS	MINERAL OILS
SESAME OIL	FATTY ACIDS	STEARIC ACID
LECITHIN	LANOLIN and PETROLATUM	BABASSU OIL

Alkalies and Other Chemicals

Textile and Laundry Starch and Sours

Silicate of Soda "Metso*", all types

"Quadrafos", Granular or beads

(*a stable polyphosphate for water conditioning and mild but effective detergency*)

AIR DRYETTES and CALCIUM CHLORIDE

THE MAYPONS—Unique surface active agents; prolific foam; high detergency and emulsifying powers; suitable for cosmetic and industrial use.

Let us mix your private formulas

*Reg. U. S. Pat. Off. Phila. Quartz Co.

WELCH, HOLME & CLARK COMPANY, Inc.

Importers — Dealers — Brokers

439 West Street — New York 14, N. Y.

Warehouses: New York, N. Y. — Newark, N. J.

upper case, extra bold letters for powdered cleaners. Filed Oct. 23, 1947 by Purex Corp., Ltd., South Gate, Calif. Claims use since May 5, 1947.

KEM-KLEEN—This in upper case, extra bold letters in the form of a curve for surface conditioner for removing wax. Filed July 15, 1947 by Nu-Way Paint and Supply Co., Canton, O. Claims use since June 26, 1947.

New Swift Oil Plant

Completion this fall of a new industrial oil processing plant that will add new sources of glycerides and fatty acids was announced recently by E. A. Moss, vice-president of Swift & Co., Chicago. The new plant is located on part of a 70-acre tract at 165th St. and Indianapolis Blvd., Chicago, which is being set aside by the company for further development of technical product facilities, Eight buildings and a tank farm are included in the construction. The fat splitting unit in the new plant is a continuous hydrolysis unit constructed by Blaw-Knox Co.

Lien Chemical Moves Offices

Lien Chemical Co., 4353 N. Avondale Ave., Chicago, has purchased land and a building at 9229 Grand Ave., Franklin Park, Ill. The new building has approximately 10,000 square feet of floor space for general offices and warehouse. A storage yard of 65,000 square feet and a spur railroad track are connected with the building. Possession will be taken about Nov. 1. The Sanitation and Extermination Service Divisions of the company will move to their new offices and warehouse at 4417 Montrose Ave. about Oct. 1.

R. D. Myers, C-P-P, Dies

Robert D. Myers, 62, an engineer for Colgate-Palmolive-Peet Co., Jersey City, N. J., died Aug. 29, in Pollak Hospital for Chest Diseases, Jersey City, after a two-year illness. He served as a lieutenant commander in the Seebees during World War II, and was assigned as an observer during the atom bomb experiments at Bikini Atoll. He is survived by his wife, his father, a step-daughter and a brother.

Oronite Names Welton

The appointment of T. M. Welton as central district manager of its product development department, with headquarters at the Fairbanks Morse Building, Chicago, was announced recently by Oronite Chemical Co., subsidiary of Standard Oil Co. of California, San Francisco. Mr. Welton joined the company's market research department in San Francisco in April, 1947. He is a graduate of the University of Nebraska, where he received an A.B. degree in chemistry, later taking a master's degree in business administration from Harvard in May, 1942. Subsequently he served as a captain in the Army Engineer Corps for three years.



J. C. MC KENNA



CHARLES GRANT

Two Diamond Appointments

Two key appointments within the sales organization of Diamond Alkali Co., Cleveland, were announced recently. J. C. McKenna, for the past six months product manager of chromium chemical sales, has been named product manager of alkali sales. He succeeds J. D. Mattern, who retired during August after 25 years' service with the firm. Appointed to succeed Mr. McKenna as product manager of chromium chemical sales is Charles Grant, assistant to the president of Martin Dennis Co., Newark, N. J., since that firm was acquired by Diamond earlier this year. Both men will make their headquarters in Cleveland. Mr. McKenna has been with Diamond for 26 years, having sold in New York, New England and the mid west. He attended Fordham University and City College of N. Y.

Mr. Grant joined Diamond in 1945 as project engineer. In March of this year he received his appointment with the Martin Dennis organization. He studied engineering at Pennsylvania State College, and is a veteran of World War II.

Joseph R. Watkins Killed

Joseph R. Watkins, 54, son of Paul Watkins, former president of J. R. Watkins Co., Winona, Minn., was found murdered in his car, just outside his home in Princeton, N. J., Aug. 25. He had been connected with the Watkins company for a short period, but in the last 25 years had been a New York attorney and in the investment business. He was shot to death by a former business associate, who later committed suicide. Mr Watkins was buried in Winona.

Soap Importer Dies

Moise K. Cohen, 60, president of Morny Sales Co., New York, an importer of English and French soaps, died of a heart attack Aug. 24, in a physician's office at 1192 Park Ave., New York, where he lived. Mr. Cohen had been stricken ill in a taxicab.

Colgate Serves T.A.S.

John K. Colgate, a director of Colgate-Palmolive-Peet Co., Jersey City, N. J., is serving as chairman of the Soap Division in the 1948 fund drive of the Travelers Aid Society of New York. Mr. Colgate is asking for contributions from individuals in the soap industry to support the varied activities of the 43-year-old organization.



A Sparkling Floral Trio

Velvetine will impart sparkle and brilliance to most any blend, adding a touch of charm and distinction without changing its general characteristics. *Iso Cyclo Citral-S* imparts a genuine lush green note. Its clean, refreshing odor makes it the perfect masking agent. *C-66* lends an appealing crispness wherever Lily-of-the-Valley is an important constituent. Its Muguet character is considerably more intensive than Hydroxy Citronellal, and produces very interesting effects. ◇ These three new specialties enhance the finest perfumes, yet are well within reach of the soap perfumer. ◇ A request on your company letterhead will bring working samples and complete information.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

DOW

Aromatics

INDISPENSABLE TO THE CREATIVE PERFUMER

RAW MATERIAL MARKETS

As of Sept. 8, 1948

FATS and oils prices were mixed as compared with a month ago, the general tendency being for the edible oils to go higher, while inedible fats and oils were lower than a month earlier. Tallow is currently selling in the 13½ to 14 cent range for the fancy grade. Late in July it was selling at 16½ cents a pound, the price declining in early August to 14 cents. The price of tallow, like those of other fats and oils is marking time pending the announcement of the fourth quarter export allocation, which was to have been announced Sept. 15.

Coconut oil on this date is higher by 4¼ cents than it was on the same date a month earlier, thus widening the gap between it and tallow to 10½ cents, the current coconut oil price being 24 cents. Copra is $5 a ton higher than a month ago, which probably accounts for the increase in the price of coconut oil.

Lard dropped from 20.95 cents on Aug. 7 to 18.75 cents on Sept. 7. Another oil the price of which dropped during the past month is cottonseed. A month ago the price was 25½ cents, while the current quotation is 23 cents.

Edible oils which advanced are: soybean, up two cents to 23½ cents and corn oil, which went from 24 to 24½ cents a pound.

Lower fat and oils prices during the next crop year, beginning in October were predicted earlier this month by the U. S. Department of Agriculture. Increased production of fats and oils will be the main factor in lowering prices, while continued strong domestic and export demand are expected to act as a brake on any sharp declines. In general, prices will be well above wartime ceiling levels, but below the average for the past year, according to U.S.D.A. estimates. Larger production of coconut and palm oils in the Orient is anticipated during the coming crop year, which will result in increased U. S. imports of those oils. Offsetting these increases in total supply by imports will be smaller production of animal fats. The main increase in the supply of fats and oils will come from vegetable oils, much of which will be in the edible category. Linseed oil production should be high, since the current flaxseed crop is the second largest in U. S. history. Although little linseed oil finds its way into the soap kettle, the oil does contribute to the total supply and thus takes that much demand off other oils.

Output of inedible tallow and grease, the leading soap fats, probably

CRESYLIC ACID — FORMALDEHYDE

High Boiling Tar Acids — Tar Acid Oil

Pyridine Bases, Refined, boiling range 160-190°C.

Basic raw materials for disinfectants, insecticides, soaps, perfumes, plastics, textiles, pharmaceuticals, lacquers, etc.

ASSOCIATED COMPANIES
KAY FRIES CHEMICALS, INC. NEW YORK, N. Y.
CHARLES TENNANT & CO., CANADA, LTD. TORONTO, CANADA

AMERICAN-BRITISH
CHEMICAL SUPPLIES, Inc.
180 MADISON AVE., NEW YORK



He's getting good business...because he's using his good scents...

from Norda

It takes good scents to build good business in your business. Norda makes good scents pay off.

You are up against smart competitors. Many of them depend on Norda odors and essences. Norda quality helps sell their products. Do they have a sales advantage, because Norda isn't helping you, too.

Put Norda to work for you. We will use good scents to solve your problems. If you make things that *sell* through *smell,* Norda can help make them sell better.

Tell Norda your puzzles and your new plans, so that we can work on them together. Ask for free samples of Norda odors and essences, completely without obligation. Write today.

Norda ESSENTIAL OIL AND CHEMICAL COMPANY, INC.
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Get the new and useful Price List of Norda Scents, Odors, and Essences. Your name brings your copy.

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will be moderately smaller in 1948-49 than a year earlier. Production of grease will be adversely affected by reduced hog slaughter. With cattle numbers on farms declining, cattle slaughter and tallow production may be reduced slightly. Imports of coconut oils (including oil equivalent of copra) into the United States probably will be somewhat larger in the year beginning October, 1948, than through 1947-48, when Philippine copra production was reduced by unusual typhoon damage to coconut groves. Imports of palm oil also may increase in 1948-49, with exports from the Netherlands Indies likely to rise, according to the summary contained in the *Fats and Oils Situation*, published by the U. S. Department of Agriculture.

Estimated 1948 oil crop production based on August 1 conditions indicates that total output of vegetable oils such as cottonseed, soybean, corn and peanut will be substantially larger in 1948-49 than in the current season. This gain will be only partly offset by a slight reduction in lard output resulting from a three percent decline in the 1948 spring pig crop.

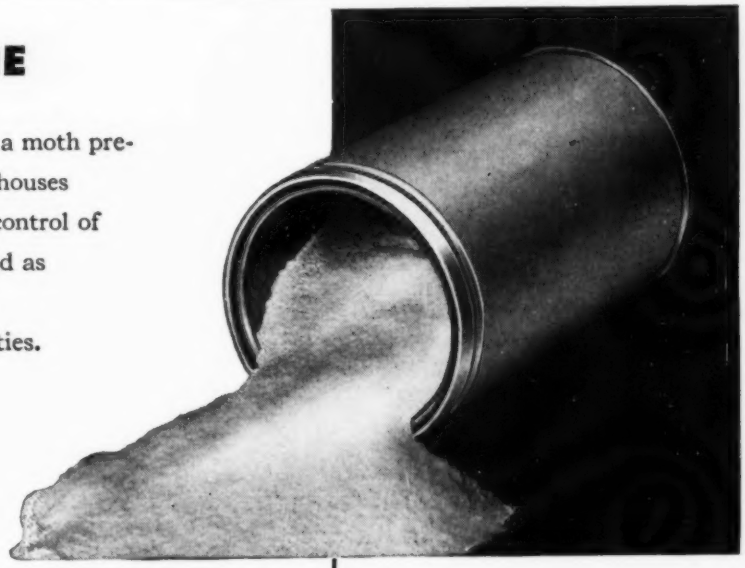
Another factor that may affect the demand for fats and oils, particularly those required for soap, is synthetic detergent production and consumption. Continued promotion of the synthetics, especially in hard water sections, is bound to have an effect on soap sales in those regions. If less soap is made, the demand for certain types of fats and oils will be reduced. This factor is one that can have an important bearing on the fat and oil outlook. Another factor that will have some bearing on demand for fats and oils during the coming year is the gradual improvement in the world wide production of fats and oils. With the ECA program just beginning to take effect, particularly in the matter of farm machinery, fertilizer and other crop aids, as well as the normal improvement from year to year, the U. S. burden of producing fats and oils to supply practically the whole world is being reduced. This is not to say that the situation will be cleared up in the next six months or a year, but the fact is that much progress toward recovery has been made, with the expectation that from now on this recuperative process should go forward at an accelerated rate.

Possible price rises on refined naphthalene and cresylic acid are expected around Oct. 1. It was indicated that these advances were to go into effect earlier, but were reported put off for at least another month. Cresylic is reported to be very short, because of greatly increased demand from a number of new sources. In fact, there is now talk of producing cresylic acid synthetically. In spite of the 19 million pounds imported into the U. S. and the 26 million pounds produced domestically, the supply falls far short of demand, mostly from new uses.

The leveling off process in the essential oils and aromatic chemicals market continues. The general price trend continues downward, with most of the floral oil prices at about the same or slightly lower levels than prevailed a month ago. (For detailed report see page 47 of this issue.)

NAPHTHALENE

Barrett* Naphthalene is important as a moth preventive in homes, stores, storage warehouses and factories, as an insecticide in the control of many garden and greenhouse pests, and as a raw material in the manufacture of deodorizing and moth-resisting specialties. It is supplied in chipped, powdered, rice crystal, flake and ball form.



Better

FOR SOAP AND SANITARY CHEMICALS

U. S. P. CRESOL
CRESYLIC ACIDS
U. S. P. PHENOL
TAR ACID OILS
NAPHTHALENE
PARACHLOROMETACRESOL
PYRIDINE
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ANHYDROUS AMMONIA

Barrett*

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

*Reg. U. S. Pat. Off.



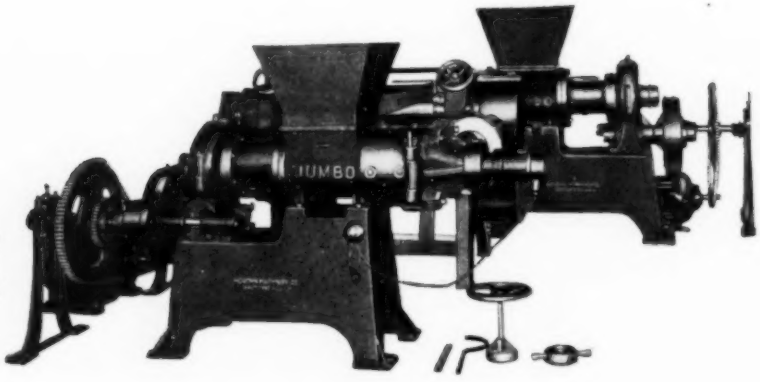
TIME-TESTED!

HOUCHIN
SOAP MAKING MACHINES-

—are backed by over 75 years of experience in designing and fabricating machines for soap making plants all over the world. Close cooperation with leading soap makers, here and abroad, has enabled us to produce machines that give quality production for a great number of years.

Testimonials from all over the world are proof that HOUCHIN machines are **made to last.**

Why not let us know your needs and we will recommend what machines can do it best—without obligation, of course.



UNIT No. 2—Capacity 500 pounds an hour twice through. Consists of 8" preliminary plodder, Three-Roll Mill, 10" double head plodder and two motors—10 H.P. and 7½ H.P.

HOUCHIN
MACHINERY COMPANY, INC.

Manufacturers of Soap Making Equipment

Fifth and Van Winkle Avenues **Hawthorne, N. J.**

PRODUCTION SECTION

LIQUID SOAPS

LIQUID soaps differ in composition in accordance with the use to which they are put. In Britain liquid shaving soaps are sold, both of a clear and an emulsified type, but they would probably not be highly popular in the United States.

Shampoos

LIQUID shampoos are good-quality soaps. By far the most popular fat stock is coconut oil, although other oils can be used. A steam-jacketed kettle is convenient. Running in hot water as soon as the mass gels, thus lowering the concentration to 30 per cent of anhydrous soap, will help to avoid "setting up." Boiling and agitation are continued until saponification is complete. This is determined by dissolving five grams of shampoo in neutral alcohol and titrating to neutrality with 0.1 normal potassium hydroxide or acid as required. The calculated amount of lye, or of oil or fatty acid, is then added to the kettle, and boiling is continued. A clear appearance and a very slightly alkaline reaction indicate that the oils have all been saponified—a conclusion that is checked by a further sample drawn after a short time. A test for anhydrous soap content permits calculation of the exact amount of water to add to complete the batch.

Some formulas definitely require chilling prior to filtration. If so, at least 48 hours of properly controlled refrigeration is essential. Addition of tetrasodium pyrophosphate should help promote clarity. Filtration is best accomplished with the aid of a suitable pressure filter, using diatomaceous earth of correct particle size as the filter aid. The filter pump should be equipped with a by-pass valve returning to the supply tank, in order to avoid exceeding the maximum working pressure. The following formulas are illustrative:

Camomile Shampoo

	Parts by wt.
Soybean fatty acids, distilled	79
Peanut oil fatty acids, distilled	33
Coconut oil fatty acids	18
Caustic potash lye, 30°Be.	55
Water	815
Camomile perfume or extract to suit	

Triethanolamine Shampoo

	Parts by wt.
Oleic acid	55
Coconut oil fatty acids	40
Triethanolamine	50
Carbitol	55

Carbitol is the ethylene ether of diethylene glycol. The triethanolamine shampoo is a clear red color; it can be diluted to any desired concentration.

Solvent Soaps

THE detergent action of liquid soap can readily be combined with the grease-removing action of solvents. The following are examples:

Naphtha Soap

	Parts by wt.
Oleic acid	107
Butyl Cellosolve	27
Cleaners' naphtha	25
Triethanolamine	19.7
Caustic potash	8.3
Water	13.5

Liquid Solvent Soap

	Parts by wt.
Coconut-linseed potash soap	20
Cyclohexanol	6
Methyl cyclohexanol	6
Trichloroethylene	8
Ammonia, 0.880	10
Water	50

The first formula gives a solvent-containing soap with good dry-cleaning properties. The oleic acid, Butyl Cellosolve, and naphtha are thoroughly mixed and heated to 140° F, with the usual precautions when dealing with inflammable solvents. In a separate kettle the caustic potash is dissolved in the water and mixed with the triethanolamine. The latter solution is then stirred into the oleic acid solution until a clear, stable solution is produced.

In these solvent-containing liquid soaps the solvent content should be sufficiently high to facilitate grease-removing and general wetting-out properties, but should not be high enough to reduce the lathering ability of the soap below a certain set minimum. The hydrogenated phenols such as cyclohexanol, in the second formula, are particularly useful to give clear soaps and also to promote rapid, complete saponification.

Floor Cleaning Liquids

FLOOR scrub soaps are usually cheap liquid soaps of the disinfectant type. Those containing rosin soap closely resemble saponified rosin-cresol-soap disinfectants. The free alkali content should not be excessive owing to its adverse effect on certain types of floor covering. The following formulas are suggested:

	Parts by wt.
Soft soap, second grade	20
Rosin soap	10
Steam-distilled pine oil	8
Trisodium phosphate	3
Sodium carbonate	4
Water	55

	Parts by wt.
Olein-soda soap	12
Potassium carbonate	3
Water	85
Sassafras perfume to suit	

The pine oil in the first formula is claimed to exert a solvent effect, facilitating the removal of grease. It also possesses odorous properties and a very mild bacteriostatic action.

Perfumes

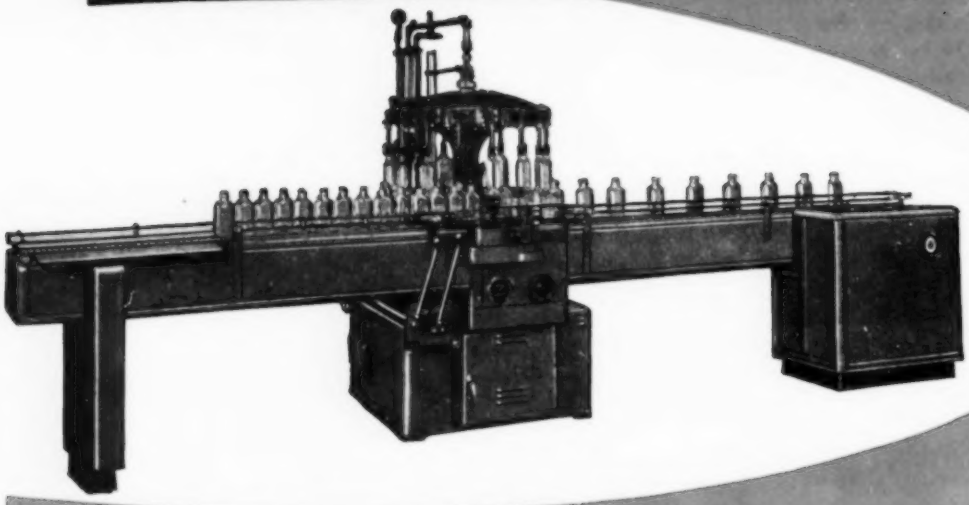
Perfuming of the various types of liquid soaps is chosen to accord with their nature and applications. Delicate notes are preferred in shampoo

ELECTED!



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liquids, such as chypre, hyacinth, jasmin, rose, and eau de Cologne. Solvent-containing liquid soaps are perfumed, if at all, with heavier covering odors such as spike oil, terpineol, pine needle oil, etc. Flooring cleaning soaps often carry the odor of pine oil, sassafras, or a cresolic disinfectant note. C. V. Cardew, *Soap, Perfumes, Cosmetics* 21, 692-5 (1948).

———•———

Improving Soap Whiteness

Methyl umbelliferone and substances of a similar fluorescent character are particularly advantageous for improving the whiteness of soaps in any form, whether cakes, flakes, threads, granules, or powder. Filled soaps containing alkaline salts can also be similarly improved in appearance. Usually 0.01-0.02 per cent of the fluorescent substance is sufficient to give the desired effect.

The fluorescent substance is preferably added to the soap in the form of a suspension or solution in water, which may be made moderately alkaline by addition of soda ash, trisodium phosphate or other alkaline salt. With milled toilet soaps or soap flakes, addition of the fluorescent substance is preferably made at the milling stage. With soap powders prepared by spraying, the fluorescent compound may be added to the mix prior to the spraying. However, it may instead be sprayed onto particles of soap powder as they fall through the spraying tower.

Combination with a bluing agent such as indigo makes possible a higher degree of whiteness and a more lively appearance than achieved with either substance alone. The amount of bluing agent should be very much smaller than that of the fluorescent compound. For example, a white toilet soap of excellent color is obtained by incorporating in the soap base 0.02 per cent of *beta*-methyl umbelliferone and 0.00003 per cent of indigo. The whitening effect is particularly noticeable in the presence of opacifying substances such as titanium or zinc oxide.

Synthetic detergents can be improved in appearance by the same treatment. Lever Brothers & Unilever Ltd., and P. W. Tainish, British Patent No. 567,716.

Newer Shampoos Combine Soap and Synthetics

MANY shampoos now contain soap to clean the hair without causing excessive drying, and a synthetic detergent, to clean the hair and prevent precipitation of hard water curd. Among the popular additions to soap are the fatty alcohol sulfates, and nonionic detergents, which are not affected by alkalies. Perhaps the most important of these are the alkanolamine condensates, which seem to be synergistic with soaps. Alkyl aryl sulfonates are also adapted to this type of use.

The main reason for the departure of many shampoo manufacturers from the use of straight soap is the difficulty encountered by use of hard water. For example, in an area where the water contains 200 p.p.m. of hardness calculated as calcium carbonate, one gallon of water would contain about one gram of calcium carbonate, which is capable of precipitating six grams of oleic acid soap. A hardness of 200 p.p.m. is not uncommon in many areas of the country, nor is one gallon of water too much when used in conjunction with a shampoo.

Consumer tests show that users give a favorable reaction to shampoos containing hair conditioners. Small amounts of lecithin and some of the amidic alcohols have apparently been successful for this purpose. Whether they prevent removal of the natural oils, or whether they substitute for them is problematical. Their use does seem to leave the hair more easily manageable after shampooing.

Jell shampoos are of interest because of the ease of their use from a collapsible tube. Any number of materials may be used in their preparation. For example, a mixture of equal parts of triethanolamine lauryl sulfate and triethanolamine myristate provides a good starting point. Alkanolamine condensates are also being used. The manner of preparation is much the same as that for liquid soaps.

Cream shampoos have become the most popular of the different types of shampoos. One reason for their quick acceptance was that their non-flowing physical form made them easier to use without danger of foam or detergent getting in the eyes.

The more popular brands utilize the anionic sulfates as the active ingredient; probably sodium lauryl sulfate is the most favored detergent. About 17-20 per cent is ordinarily present in the finished product. Agents used in conjunction with this to give the desired consistency include higher alcohol sulfates such as sodium cetyl sulfate, sodium stearate, glyceryl and ethylene glycol monostearate.

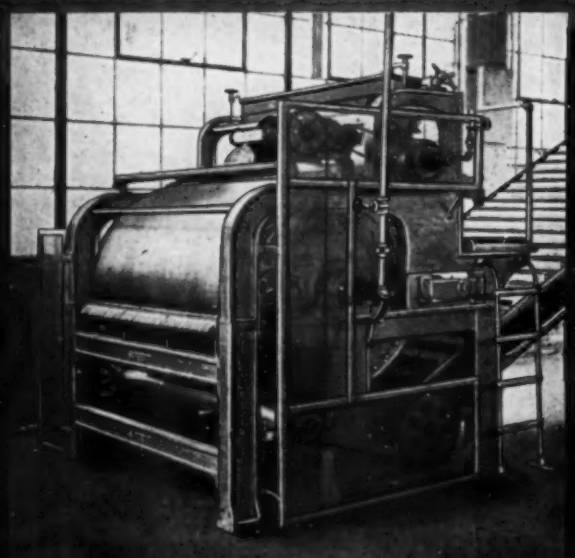
Sodium cetyl sulfate has some detergent characteristics, though it does not foam to any extent. It is not soluble to any marked degree even at elevated temperatures. These properties make it suitable as a stiffener for the cream. Glyceryl monostearate or ethylene glycol monostearate serves as emulsifier and opacifier. Too much of either reduces foaming power, so that it must be used judiciously. Sodium stearate is perhaps the best cream stiffener since it will not readily dissolve even at summer temperatures. About five per cent is commonly used. Alkanolamine condensates and other agents are also used.

The prevalent complaint concerning cream shampoos is their drying effect, since their high detergent efficiency removes the natural oils from the hair. Attempts to counteract this effect by incorporation of hair-conditioning agents such as lanolin, have met with varying success. Too much lanolin reduces foaming power.

The idea has been advanced that a cation-active agent be used after the shampoo so that the hair may be reconditioned easily. If a two-unit sales item could be marketed, the idea has excellent possibilities. The quaternary ammonium compounds have substantive action toward hair and leave it feeling silky and easily manageable. Harry Hilfer, *Drug & Cosmetic Ind.* 62, 63, 744-5, 841-3 (1948).

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PRODUCTION *Clinic*

By E. G. THOMSSEN, Ph.D.

RECENTLY, I attended a conference of executives and their production staff, meeting to consider the most efficient and economical way to move their machinery and equipment from their present plant to another building. In the course of their deliberations, the question arose as to whether it would be more advantageous to build a certain piece of machinery in their own shop, rather than purchase it at the seemingly high price quoted for a new, standard machine. Considerable discussion arose on the point, which is one that arises in larger plants quite frequently. Opinion was sharply divided and three of those present were opposed to building the equipment themselves, citing reasons based on past experience.

The first man told of a mixer which had been built in the machine shop of a company by which he had been previously employed. The mixer, of one ton capacity, was to be used to mix heavy material, weighing about 90 lbs. per cubic foot. When quotations for a new standard machine were received, it was decided the prices were too high. The firm consulted its maintenance shop men, who said they could build a mixer to do the work at about half the price. It was decided to build the equipment. A second-hand, closed, round, heavy iron tank was used as the mixing chamber. The necessary flanges, shafting, bearings, pulleys and mixing blades were installed and a method devised for emptying the tank. After considerable delay, during which time a small make-shift mixer was used, the machine was completed. It took about three months to build and erect the mixer. The delay necessitated overtime pay and slow operation. One mechanical defect after another developed



and the finished product also was not properly blended, requiring changes in the mixing arms. More time, money and labor were spent. When the mixer finally operated satisfactorily and the company figured the cost, it received a shock. The mixer was just about twice as expensive as one built by the manufacturer specializing in mixers.

The second man told of a similar incident related to the removal of noxious vapors from a processing operation. The plant men had never had any experience in exhausting such vapors, but considered it a simple problem which they tackled with confidence. They installed what they considered proper air-tight ducts and a suitable exhaust fan. When the system was finally put into operation, back draughts, leaks and improper dispersion of vapors resulted. These imperfections were so bad that the plant had to shut down until someone was secured to salvage part of the materials and re-arrange the system so as to make it work. The system cost more to correct than if an outside organization had installed it in the first place.

Like a Texan's, the last man's story was the worst. In the case history he reported on, the equipment was installed and then had to be ripped out entirely and replaced with an installation that was considered in the beginning as being too costly and impracticable. The case involved a dryer. The problem was to dry a granular substance at rather low heat to low moisture content. The mechanical crew of the firm had not had much experience with dryers but confidently stated they could build a satisfactory shelf-type dryer. The crew used unit heaters, angle iron, rock wool, wooden trays with mesh wire bottoms and enclosed the three section compartment with sheet iron. It was a very neat looking dryer when completed. The trouble was that it did not work. When the damp product was spread on the trays and pushed into the sections, very uneven drying resulted. To overcome this, the heat and the air flow were increased. Spreading the material thinner on the trays and other improvisions were tried. None was satisfactory. After experimenting for months, the cabinet was dismantled and one installed built by a specialist in the dryer field. The new one worked satisfactorily almost from the start.

Experiences such as those outlined above are daily occurrences. The building of machinery and equipment may look very simple, yet it is a specialized field. For a manufacturer to play the other fellow's game unless he has experts in the particular machinery field he seeks to improve upon, is foolhardy. Spending more money to buy equipment proven useable in other directions and which a specialist knows how to construct is a sounder course.

These comments do not necessarily mean that the users of machinery cannot improve upon what is already available. We know of numerous cases where manufacturers have rebuilt and improved equipment which



To improve your soap—Specify Neo-Fat Fatty Acids

Only Neo-Fat fatty acids, made possible by Armour's patented fractional distillation process, can offer you these distinct advantages . . .

- **Faster, easier, more complete saponification!**
- **A higher yield of anhydrous soap!**
- **Greater uniformity of the finished soap!**
- **Variety of choice affording sharper control of finished product!**

To assist you in making your selection of the specific fatty acid for your use, average specifications of several widely used Neo-Fats are listed below:

DOUBLE DISTILLED COTTONSEED FATTY ACIDS

Titer	37°C.
Neutralization Value	200
Iodine Value (Wijs)	105
Color	5 FAC

DOUBLE DISTILLED CORN OIL FATTY ACIDS

Titer	30°C.
Neutralization Value	199
Iodine Value (Wijs)	110
Color	5 FAC

DOUBLE DISTILLED SOYBEAN FATTY ACIDS

Titer	24°C.
Neutralization Value	198
Iodine Value (Wijs)	135
Color	5 FAC

DOUBLE DISTILLED COCONUT FATTY ACIDS

Titer	28°C.
Neutralization Value	254
Iodine Value (Wijs)	12
Color	1 FAC

DOUBLE DISTILLED ANIMAL FATTY ACIDS

Titer	40°C.
Neutralization Value	197
Iodine Value (Wijs)	60
Color	5 FAC

NEO-FAT 3 (Mixed Oleic-Linoleic Acids)

Titer	23°C.
Neutralization Value	198
Iodine Value (Wijs)	120
Color	8 FAC

NEO-FAT S-142 (Fractionated Tall Oil Acids)

Titer	below 20°C.
Neutralization Value	190
Iodine Value (Wijs)	130
Color	8 FAC
Oleic-Linoleic Acids	approx. 86%
Rosin Acids	approx. 14%

NEO-FAT D-242
(Low-cost Fatty Acid and Rosin Acid Mixture)

Neutralization Value	175
Color	10 FAC
Oleic-Linoleic Acids	approx. 30%
Rosin Acids	approx. 70%

In addition, Armour produces a variety of fatty acid products suitable for specialty soaps, shampoos and cosmetics. These include fractionally-distilled commercially pure lauric, myristic, palmitic and stearic acids as well as "tailor-made" mixtures. The Armour fatty acid derivatives—amines, amine acetates, amides, nitriles, quaternary ammonium salts—are also widely used by the soap and sanitary chemicals industry.

For data sheets, samples, quotations, write:

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was sold as being the best and latest in design. Such refinements are often incorporated by machine manufacturers. The chances of improving, however, are far better with a machine already built to do a certain job. Manufacturers often buy a good used machine, renovate it in their machine shops and make alterations which render it better adapted to their own particular problem. This is more economical than attempting to design and build a new machine from parts which are purchased from numerous scattered sources.

When the men at the conference had concluded their meeting, they wisely decided that, even though the cost of certain machinery was high, they would be getting standard workable equipment. They were going to play safe. Undoubtedly this will prove to be a wise decision and result in savings in the end.

Iron Drum Upender

Melvoz Manufacturing Co. of Los Angeles, manufacture an iron drum lifting device which can prevent accidents. It consists of a solid steel bar equipped with a tool that easily and firmly hooks over the chime of a drum. About 30 percent of the effort ordinarily exerted is all that is necessary to upend a steel drum. With the device one man can easily lift heavy drums.

Machine Mounting

A method for anchoring machines to floors without bolts or lag screws is available as "Unisorb Machine Mounting," made by Felters Co., of Boston. A special cement binds these "Unisorb" pads to the machine feet and to the floor with a minimum holding strength of 1500 lbs. per square foot. This method of fastening economizes greatly over the drilling of holes and makes for a neater appearance. The pads absorb 60 to 85 percent of the vibration and cut down on noise. Samples and further details are available upon request to the company.

Germicidal Lamp

Hanovia Chemical and Manufacturing Co., of Newark, N. J., are offering a new type ultraviolet light to protect various manufactured products from contamination and spoilage by bacteria and fungi. The lamp may be mounted flush to ceiling or at the desired distance above processing tables or conveyor tables to prevent airborne microorganisms from entering the product and causing spoilage. The lamp is also useful for various purposes in bacteriological laboratories.

Continuous Soap Process

Sharples Corp., New York, is currently advertising the availability of continuous process soap plant. The firm states that its process will continuously produce a finished soap equal to full-boiled quality, hour by hour. The neat soap is claimed to be uniformly equal to the standard grades of toilet and laundry soaps in commercial production. The usual formulations for such soaps, made from fats, oils and rosin, may be used. Their conclusions are based upon extended experience with a commercial plant, operating 24 hours per day, in a prominent soap factory. This installation has produced millions of pounds of soap satisfactorily. Their Bulletin No. 1241 is available to interested persons.

Viscous Insecticide Mixer

National Engineering Co. of Chicago, is recommending their "Simpson Mixer" for the uniform dispersion of viscous resinous toxicants with the powdered carrier to make a finished insecticide dust. This mixer makes a uniform mixture that does not "ball," making the insecticide less effective. The machine works by mulling which is comparable to the rubbing, kneading and smearing action when a mortar and pestle are used. The company will analyze mixing problems. They maintain a laboratory for experimental runs.

Flexible Pipe Joints

While the Barco Co., Chicago, has offered flexibility and protection for liquid lines for more than 30 years, the utility of these lines in many cases is overlooked. The Barco "Flexible Joint" is not merely a swivel joint but consists of a swivel and ball joint. The rotary motion thus produced makes it possible to install pipe lines at any angle. Information regarding the advantages of using such equipment may be had by addressing the company.

New Tape Applicator

A new, semi-automatic machine for applying standard pressure (masking) tape to drums, roll goods, canisters, cartons, etc., on a production basis was introduced recently by Lake Laboratories Co., Clifton Heights, Pa., The new machine has only one moving part. Packages, up to 17 inches in diameter are placed between adjustable spring clamps. One complete hand revolution of a swivel arm feeds the tape evenly and neatly to the package. The tape is cut by a blade. The swivel arm is available in any height (length) up to 28 inches and is mounted in an oilless bearing. The unit weighs 40 pounds and sells for $42.50, f.o.b. factory.

Folder on Coatings

A new four-page folder for plants where corrosion is a problem was released recently by Profcoat Laboratories, Inc., Cambridge, Mass. Included in the bulletin are many actual case histories of leading plants in many different types of industries now using corrosion resistant coatings. Ways of reducing painting maintenance costs by providing machinery, equipment, walls, floors, and other surfaces with effective protection against corrosion from acids, alkalies, oil and water are illustrated and described in the folder, a copy of which is available from the company at 63 Main St., Cambridge.

German Wax Study

A "Study of German Snythetic Waxes" (Report PB-3427) translated by S. S. Cosman and reviewed by P. F. Dewey was published recently in cooperation with the Office of Technical Services, U.S. Department of Commerce, and is now available for $10 a copy from Mr. Dewey at 1516 Spencer Ave., Wilmette, Ill. Part of the report contains formulas and methods of production of the I. G. Farben company waxes. Part B. was written by chemists in the Oppau Werke and describes the production and application of all I. G. waxes manufactured there.

ALL 12 are *protected* against corrosion



at the LIQUID LEVEL



Nickel-Clad Steel was used in the top courses of these soap kettles built by Philadelphia Iron Works, Inc., of Philadelphia.

Soap makers know that carbon steel kettles corrode at the liquid-air level. They replace corroded sections with courses of Lukens 10% Nickel-Clad Steel, securing the corrosion resistance of *solid* nickel at the lower cost of *clad* steel.

Lukens Clad Steels are providing similar protection for other processing equipment, while also preventing contamination of materials being processed. Nickel-Clad, Stainless-Clad, Inconel-Clad or Monel-Clad is chosen according to the character of corrosion encountered. A uniform thickness of cladding—10% or 20% of total plate thickness—is permanently bonded to a steel backing plate.

The extra smooth Sodium Hydride Finish now available on Lukens Clad Steels makes cleaning even easier than before.

Lukens Bulletins 255 and 338 contain information that will help you adopt Lukens Clad Steels for your processing equipment. For a copy, write Lukens Steel Company, 446 Lukens Building, Coatesville, Pennsylvania.

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Improved Gravity Filler

A siphon gravity filller of new design was announced recently by Scientific Filter Co., New York. The



new filler can be used for disinfectants, insecticides, water soluble floor waxes, cleaning solutions, shampoos, rug cleaners and similar solutions. New feature of the filling machine is an improved type of automatic inlet valve, which can be regulated to control the pressure and therefore the volume of the incoming liquid. It also governs the level of the liquid in the reservoir which in turn controls the filling level of the containers. The automatic inlet valve has three controls for low, medium and high pressures, thus making the machine adaptable to all plant operating conditions.

Liquid entering the valve passes through the funnel shaped interior of the float controlling the liquid and then enters the reservoir at the bottom, thus eliminating any foaming. A fully balanced bottle rest is controlled by a specially designed turnbuckle which affords micrometric adjustments for accurate filling of the containers.

The liquid reservoir is fully enclosed under a one piece metal hood, which is equipped with a removable metal front panel that permits inspection of the interior. The reservoir is designed so that it drains itself dry, thus making it easy to change from one liquid to another without delay.

Safety Message on Cups

Safety messages on paper drinking cups for workers in industrial plants are now being supplied by Continental Can Co., New York, the company announced recently. Safety slogans and reminders are printed on paper cups for use in plant cafeterias and commissaries. Such messages as, "Do things the safe way' " and "Use safety equipment provided for your protection" are printed on paper cups, whose design, typography and color are varied in an effort to secure and maintain employee interest. Many cup designs are said to have created so much employee interest that they are incorporated into permanent plant safety programs.

New Koppers Bulletin

The availability of an eight-page technical bulletin dealing with Di-tert-butyl-meta-cresol, its properties, uses and chemical reactions, was announced recently by the chemical division of Koppers Co., Pittsburgh. The compound, an alkylated tar acid, is a high-boiling solid phenolic. It is soluble in the common organic solvents, but is essentially insoluble in aqueous alkaline solutions. It is of interest to the soap, fat and perfume industries.

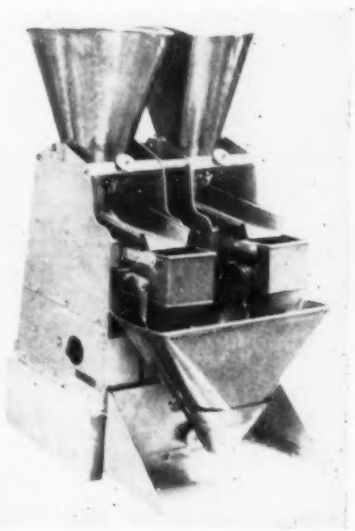
The new Koppers bulletin, C-8-114 includes technical information relative to the properties of the compound, commercial information as to containers and handling conditions, and a discussion of its uses. Copies of the bulletin are available on request at the company's Pittsburgh office.

Booklet on Organic Acids

"Organic Acids" is the title of a new booklet recently published by Carbide and Carbon Chemicals Corp., New York. Properties, specifications and uses of synthetic butyric acid, 2-ethylbutyric acid, caproic acid and sorbic acid are presented in detail in the new booklet. Thirteen charts present such data as physical constants, solubilities and electrical conductivity. Constant boiling mixtures and a section on specification test methods are also included. Copies of the booklet are obtainable on request from any of the company's offices.

New Weighing Device

"Thrifty Weigh Duplex," a new filling and weighing machine, was developed recently by Glengarry



Machine Works, Inc., Bay Shore, N. Y. Designed for proportioning dry materials into various chemical compounds, in addition to filling of chemicals, the new equipment has all contact parts made of stainless steel. It embodies two filling stations discharging into a single guide funnel. A compact unit that can handle a variety of dry materials, the "Thrifty Weigh Duplex', is designed for bench mounting. It will handle practically any type of container of most any size.

Paisley Labeling Booklet

Paisley Products, Inc., Chicago, recently issued a six-page, two-color technical service bulletin on bottle labeling adhesives. In addition the booklet covers application techniques and label selection data. The first section deals with labeling methods; hand brushing, table model gumming machines and fast automatic machine types. A complete range of all bottle label adhesive bases is discussed. Another section of the booklet deals with design, selection and handling of paper labels and concludes with a section recommending the proper adjustment of adhesive for all machine operations. Copies of the booklet are available by writing the company at 1770 Canalport Ave., Chicago 16.

THESE ARE

NEW ALRO CHEMICALS

SEQUESTRENE AA

A crystalline polyaminocarboxylic acid which in neutral or alkaline solution deionizes divalent and trivalent cations, forming stable chelate complexes; a non-colloidal, non-hydrolyzable water softener, sequestering agent, water soluble ion exchanger. Uses: to counteract alkali earth and metal trace effects in soaps, detergents, germicides, polymers, textiles, pharmaceuticals, etc.

ALROSEPT MB

A crystalline quaternary ammonium germicidal surface-active agent: alkyl imidazolinium chloride, m.pt. 90°C; soluble in water (over 20%) and organic solvents other than aliphatic hydrocarbons. Phenol coefficient (FDA): 900 vs. staph. aureus; 475 vs. E. Typhosa. Suggested uses: sanitizing agents.

ALROWET 12

A secondary C-12 alcohol sulfate non-foaming wetting agent for 3-15% electrolyte. Draves' test 0.1% active solution in 10% sodium hydroxide, sulfuric acid or salt at 25°C: less than three seconds. Suggested uses: alkali cleaners, plating, carbonizing, bleaching, pickling.

ALROTERGE T

A 50% solution of purified triethanolamine alkyl benzene sulfonate with foaming, detergency, wetting and solubilizing properties. Suggested uses: shampoo and cosmetic formulation; upholstery, rug cleaners; liquid household detergents.

ALROLENES

A series of 100% active substituted ammonium salts of alkyl benzene sulfonic acid, including methyl pyridinium, methyl butyl ammonium, methyl hydroxyethyl ammonium, etc. Available as clear gels soluble or dispersible in water and organic solvents, including kerosene. Applications: as surface-active agents for aqueous or solvent systems. Availability: laboratory quantities.

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New Small Filter Units

The development of new, inexpensive, small, filter units, especially designed for either periodic or continuous filtration, was announced recently by Sethco, Jamaica, N. Y. The units, constructed of stainless steel throughout, are being used for soaps, chemicals and related materials. Approximately 20,000 gallons of solutions can be filtered through each filter tube before it needs changing, according to the firm. The unit comes complete with motor, pump and filter, mounted on a laminated plastic panel. The entire unit weighs 30 pounds. A filtration rate of 100 gallons per hour is recommended for greatest efficiency, although filtration rates as high as 250 gallons per hour are possible. The filtration rate can be adjusted to any desired flow between 0 and 250 gallons by turning a valve located between the pump and filter. The filter tube is made of specially processed cotton yarn wound around a stainless steel core and requires no filter aids to remove even colloidal particles.

Norda Price List Out

Norda Essential Oil and Chemical Co., New York, recently issued a complete price list of its essential oils, aromatic chemicals, scents and odors. the 16-page price list is the first of a series to be issued several times each year hereafter. Copies are available upon request.

Folder on Conveyor

A four-page folder illustrating and describing "Multi-Tier" conveying equipment, made by J. W. Greer Co., Cambridge, Mass., was issued recently. The equipment, which provides continuous flow of production through process-operations that require "waiting time," is completely automatic. By means of a series of trays that always remain on a horizontal plane, yet can be extended to the ceiling to carry products back and forth during needed "waiting time" after they come off the production or processing line, unused overhead space is used, rather than extensive floor space. Speed of trays can be adjusted to coordinate with production lines.

New D & O Catalog

Dodge & Olcott, Inc., New York, issued during August a catalog and price list on their lines of essential oils, aromatic chemicals and related materials. The catalog, which measures 8½ x 11 inches and numbers 40 pages, is available on request.

Book on Wool Wax

What is believed to be the only technical study of recent years devoted solely to wool wax was published recently in book form under the title, "Wool Wax, A Review of its Properties, Recovery and Utilization" by D. T. C. Gillespie. Hobart Publishing Co., Washington, D.C., is the publisher of the work, which is based on a study undertaken by the author for the Australian Council for Scientific and Industrial Research. Price of the 96-page, pocket size (5¼ x 8 inches), paper covered book is $5. A considerable section of the book is devoted to a discussion of the chemical properties of wool wax, uses and derivatives, especially cholesterol, purification of wool wax by a number of processes, wool wax acids, and many other technical subjects. Important, too, is the final section of the book, which lists 422 literature references.

New Photoelectric Counter

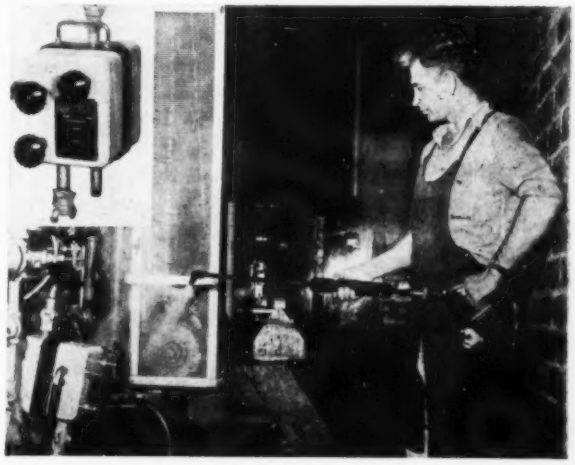
A new photoelectric counter, Type 20AP5, was announced recently by Photoswitch, Inc., Cambridge, Mass. It is a general purpose unit that can be installed on any conveyor system or automatic machine. The new unit is designed with particular reference to case and bottle counting. The light source supplied with the equipment has an adjustable lens system which permits narrowing down the light beam for counting very small objects. Counter Type 20AP5 is packaged complete including light source, photoelectric control and electric counter. A bulletin, PA482 on the new counter is available.

New Ultra Catalog

Publication of a new catalog of surface-active agents, synthetic organic and textile chemicals was announced recently by Ultra Chemical Works, Inc., Paterson N. J. Detailed descriptions of the physical and chemical properties of all the company's products, including the "Sulframin," "Ultramin" and "Ultrapone" series are given. Methods of application and uses of these products are also shown. Copies are available by writing the firm.

New Turco Cleaning Unit

An improved steam cleaning unit that is light in weight and easily portable was announced recently by Turco Products, Inc., Los Angeles. The new turco "Hydro-steam" cleaning unit, weighing 28 pounds, is said to be practical wherever a steam line pressure of 80 to 150 pounds is available. It offers a simple mechanical means of utilizing the plant's own steam to supply the proper amount of cleaning solution in a regulated flow where it is mixed and delivered through a single hose to the cleaning gun.



At right: New Turco "Hydro-Steam" cleaning unit in operation. The unit permits use of plant's steam, which is mixed with cleaning solution via unit in inset upper left.

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PRODUCTS AND PROCESSES

Fatty Acid Distillation

The Lurgi Gesellschaft in Germany initiated new designs of equipment for fatty-acid distillation, which have been further developed almost in a parallel there and in the United States. The distillation plant consists of a pot-still working under high vacuum in conjunction with low-pressure steam injection. The distillation vessel is fed with pre-heated and deaerated fatty acids which are drawn into the still by a vacuum ranging from seven to 10 mm. of mercury.

The fatty acids are further heated to 432-42°F. and distilled. The mixture of fatty-acid vapors and steam distil off through a duct leading to the cooler condenser, where they are separated from the steam and collected in the fatty-acid receiver. A steam jet compressor draws off the steam with some entrained fatty acids which are collected in the separator. C. Keleti, *Canad. Chem & Proc. Industries* 32, 630-2 (1948).

Soap Filler from Agar

A finely dispersed filler is produced by nitric-acid treatment of the waste from agar production, followed by washing, drying, and grinding. G. S. Petrov and B. V. Zikeev. U.S.S.R. Patent No. 67,268; through Chem. Abs.

Improving Tall Oil Odor

Crude tall oil is heated at 300°C. for three hours with two per cent phosphoric acid, then distilled at 225°C. and five mm. pressure, to give 70-80 per cent yield of oil with improved odor and color, reduced acid value, and a lesser tendency to crystallize. A. Kalman, to Ridbo Laboratories, Inc. U.S. Patent No. 2,441,197.

Amide Emulsifiers

Emulsifiers capable of forming stable oil-in-water emulsions are made by the reaction of trihydroxy stearic acid and an alkylol amine in equal molecular proportions in the presence of an aromatic hydrocarbon. Water is removed at the reflux temperature of the solvent until formation of the amide is complete. B. B. Schaeffer, to the U.S. U.S. Patent No. 2,440,349.

Improving Colored Soap

Both colored soaps and synthetic detergents can be improved in appearance by incorporating into the bar at any stage of manufacture a small proportion of a blue-fluorescent substance such as a hydroxy coumarin. The amount is ordinarily less than 0.1 per cent of the weight of the soap. The fluorescent material is in addition to the usual coloring matter present. Red, orange, lavender, blue, and violet-colored soaps have a brighter and more lively appearance because of such addition. Lever Brothers & Unilever Ltd., and P. W. Tainsh, British Patent No. 575,406.

Paste Detergent

Esters of aliphatic hydroxy acids with at most six carbon atoms, that are miscible with water as well as with oil over a wide range, are compounded with a nonoily support or thickener. For example, 10 kilograms of bentonite was made into a smooth paste with 25 kg. of water, and 30 kg. of lactic butyl ester were added. The mixture was blended with 15 kg. of aluminum stearate and 20 kg. of talcum powder into a pasty mass ready for filling tubes. Chem. Fabriek "Schiedam" Dr. Schilling N. V. Dutch Patent No. 61,085; through *Chem Abs.*

Drying Sulfosuccinates

Addition of five per cent of sodium benzoate to an aqueous solution of a dialkyl sulfosuccinate, in which the alkyl groups contain five-10 carbon atoms, gives a solution which can be spray-, drum-, or tray-dried. Dry, noncaking, water-soluble powders which are surface-active are obtained without the need for use of large amounts of inert material. E. A. Vitalis, to Am. Cyanamid Co. U.S. Patent No. 2,441, 341.

Fatty Acid Esters

Fatty acid esters of methyl glucoside can be prepared by the alcoholysis reaction. Alcoholysis of triglycerides by methyl glucoside gave an impure reaction mixture containing 60-70 per cent of glucoside-monoesters. Mono-, di-, and trioleoyl methyl glucosides were prepared by alcoholysis of methyl oleate with *alpha*-methyl glucoside. H. Wolff and W. H. Hill, *J. Am. Oil Chemist's Soc.* 25, 258-60 (1948).

Pure Oleic Acid

Pilot-plant production by the Emersol Process is turning out a quantity of pure oleic acid. Absence of the eight-12 per cent of linoleic acid ordinarily present in commercial oleic acid makes a drastic difference with respect to oxidation stability, color stability, and resistance to rancidity. One of the most convincing demonstrations of this improved stability is the fact that the material shows little if any more discoloration on vigorous heating, than does high-quality stearic acid. Such color stability is of importance in a number of applications. Manufacturers of liquid soaps and shampoos will benefit from the practically odorless quality, as well as odor and color stability. R. F. Brown, *Am. Perfumer* 51, 547-50 (1948).

Separating Tall Oil Acids

The resin acids of tall oil are decarboxylated by dehydrating and then heating at 300°C. for one houre with 1.5 per cent phosphoric acid or phosphorous anhydride. Gas, steam, and an odorous oil are liberated. The product is distilled at 250-300°C. vapor temperature, and two mm. pressure. The distillate consists of 39 per cent fatty acids, four per cent rosin, and the balance rosin hydrocarbons. It may be esterified with glycerol and redistilled, or saponified and extracted with petroleum ether, to separate the fatty acids. V. K. Babayan, to Ridbo Laboratories, Inc. U.S. Patent No. 2,441,198.

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No. 2,444,836, Detergent Briquette, patented July 6, 1948 by James Douglas MacMahon, Niagara Falls, N. Y., assignor to Mathieson Chemical Corporation, a corporation of Virginia. A detergent briquette is covered that is physically stable, hard, strong and non-deliquescent, consisting of a dense crystalline aggregate composed essentially of the following constituents in proportions by weight within the respective indicated ranges; total water about 30-50%, at least one detergent of the group consisting of sodium carbonate and trisodium phosphate aggregating from about one-tenth to about one-half the total formula weight, about one-30% of a sodium borate, up to about 50% of a sodium polyphoshate including not more than about 15% of the polyphosphate of the group consisting of sodium tetraphosphate and sodium hexametaphosphate, and about 0.5-five % of a non-saponaceous alkali-stable organic synthetic detergent.

No. 2,444,837, Detergent Briquette, patented July 6, 1948 by James Douglas MacMahon, Niagara Falls, N. Y., assignor to Mathieson Chemical Corporation, a corporation of Virginia. Patent covers a briquette physically stable, hard, strong and non-deliquescent, consisting of a dense crystalline aggregate composed essentially of the following constituents in proportions by weight within the respective indicated ranges; total water about 30-50%, at least one detergent of the group consisting of sodium carbonate and trisodium phosphate aggregating from about one-tenth to about one-half the total formula weight, and about one-30% of a sodium borate.

No. 2,444,752, Particles Coated with 2,2 bis-(parachlorophenyl)-1,1,1-tri-chloroethane,) patented July 6, 1948 by Edouard H. Siegler, Takoma Park, Md. A process is patented for intimately mixing a solid material in finely divided form with an insecticidal quantity of 2,2-bis, parachlorophenyl) -1, 1, 1-trichloroethane and heating the resulting mixture to fuse the said 2,2-bis(parachlorophenyl)-1,-1,1-trichloroethane as a continuous external coating on the surfaces of each of the individual particles of said solid material.

No. 2,445,776, Conditioned Naphthalene, patented July 27, 1948 by Hubert G. Guy, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa., a corporation of Delaware. Patent covers a free flowing powdered composition comprising a coal tar product containing at least one coal tar hydrocarbon, chosen from such hydrocarbons as are usually present in the naphthalene to anthracene boiling ranges, having a melting point about 70°C. having intimately mixed therewith at least four% of fuller's earth and at least one% of a magnesium compound selected from the class consisting of magnesium carbonate, magnesite, magnesium oxide, and magnesium phosphate.

Degreasing Metals

Degreasing of metals in aqueous solution depends primarily on preferential wetting of the surface by the solution. Strong alkalies containing a small amount of wetting agent have proved very effective. After the metal is wet, the oil should be emulsified to prevent it from rising to the top of the solution and contaminating the metal article on removal. Oil in emulsified form will be free-rinsing in the later rinsing stages provided the emulsion does not break. Early emulsification of the oil is not imperative. Alkalies by themselves are slow cleaners. More study should be given to the choice of wetting agents for addition to the alkaline cleaners. With a suitable wetting agent, this will be sorbed on the surface of the metal, so that on rinsing in water oil is completely removed. P. D. Liddiard, *Chem. and Ind.* 1948, 435-7.

Mersolate Soaps

Mersolates, which are alkyl sulfonates, have been much used in Europe in making soap. An example of a product based largely on this type of agent is the following:

	Parts
Caustic soda, 45°Be	230
Mersol acids	307
Synthetic fatty acids	77
Filling paste	444

The filling paste consists of 267 parts of 30 per cent potash solution and 177 parts of sodium bicarbonate.

Patents have been issued for use of all kinds of additives with Mersolates to give detergent products, including Tylose, waterglass, bentonite, kaolin, alginate, and salt solution. Almost every type of soap product has been prepared containing some proportion of Mersolate, including shaving soap. H. Manneck, *Seifen-Ole Fette-Wachse* 74, 124-6 (1948).

Seed Fat Stearic Acid

Pure kokum butter, obtained from the seeds of the Indian plant, *Garcinia indica,* contains 52 per cent stearic acid, 41.5 oleic, and 5.3 per cent of palmitic acid. A method is described for separating the stearic acid with a yield of 88 per cent. E. C. J. Dasa Rao, *J. Sci. Ind. Research* (India) 7, No. 1, B, 10-11 (1948).

Fat-stabilizing Agent

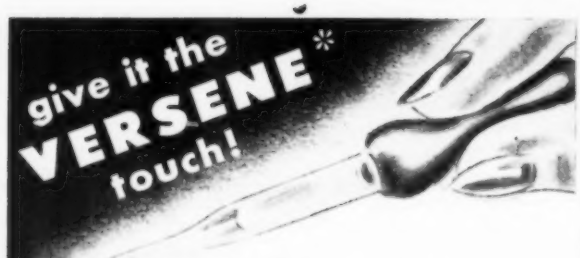
Fats and oils can be stabilized against development of objectionable odor, taste, or color by the addition of 0.1-2 per cent of hydroxylamine during the refining process. O. L. Scherr, to Industrial Patents Corp. U.S. Patent No. 2,441,547.

Iodine Number Tests

Comparative tests were made with Wijs solution and the Hubl solution, with contact of 60 minutes for Wijs, two and (or) 24 hours for Hubl. The difference between the two methods is practically constant for the same type of oil, but varies with the iodine number. B. E. Lutz, Anais assoc. quim. Brasil 6, 181-3.

Oil from Pili Nut

Oil of pili nut (*Canarium ovatum*) from the Philippines consists of 33. 6 per cent of palmitic acid, 21.9 stearic, 0.4 arachidic, 0.1 myristic, 43.3 oleic, and 0.7 per cent lineolic acid. The nut contains 72.5 per cent of oil with 1.1 per cent of unsaponified matter. The oil can be hydrogenated under normal pressure into a white solid melting at 50-51.5°C. With an iodine number of 35.2 S. Ueno and K. Man, *J. Agr. Chem. Soc. Japan* 20 465-7; through *Chem Abs.*



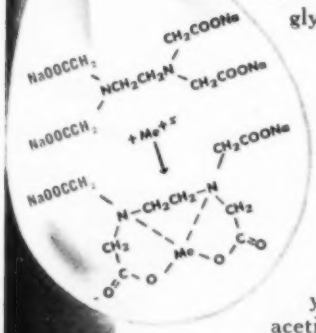
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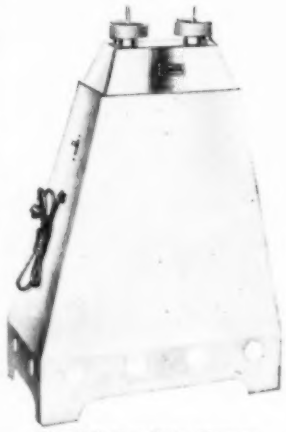
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Dielectric Fat Heating

Dielectric heating was tested as a means of preventing the formation of free fatty acids in cottonseed during storage of the moist seed. When material which is a poor electrical conductor is placed between two metal plates, and electric power of radio frequency is applied, the rapid reversal of electric charges results in molecular friction of the material. Dissipation of electric power in this manner results in heating material by generation of heat inside the material. With most other types of heating the temperature of the inner material can only be raised by thermal conduction from the outside. A characteristic of dielectric heating is the evenness and extreme rapidity with which the temperature can be raised.

Exposure of moist cottonseed to a radio frequency electric field for two-five minutes effectively reduced the formation of free fatty acids during the subsequent storage of the seed. Moisture was rapidly removed from the seed during the treatment, and the enzymes responsible for free fatty acid formation were destroyed. Cottonseed containing 20 per cent moisture accumulated free fatty acids only very slowly on storage at 38.5°C. Temperatures above 100°C. were attained inside the cottonseed in less than one minute by the treatment. C. M. Lyman, E. J. Burda, and P. Q. Olschner, *J. Am. Oil Chemists' Soc.* 25, 246-9 (1948).

Monoglycerides Activity

Monoglycerides show a type of surface activity which makes them useful as emulsifying agents. They also can be combined with synthetic detergents. Surface activity increases with the number of carbon atoms in the chain, as shown for C_2-C_6 monoesters in terms of surface-tension measurements:

Monoglyceride	*Surface Tension dynes cm. at 20.C.*
Acetic ester	41.27
Propionic	36.63
n-Butyric	35.29
Isobutyric	31.58
n-Amyl	30.91
n-Caproic	30.59

Monoglycerides are pictured as orienting at the surface of their solutions with the two hydroxyl groups dissolved in the water, and the hydrocarbon radical extending into the air. In a diglyceride, only one hydroxyl group would be left to give a solubilizing effect.

Sulfation increases the emulsifying properties of monoglycerides.

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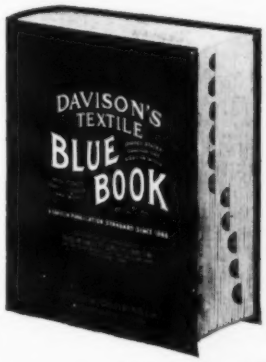
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For example, "Artic Syntex M" is a type of product in which one of the hydroxyl groups of glycerine is esterfied with a fatty acid, one is esterfied with sulfuric acid, and one is left free. It is possible to produce compounds with varied properties by this type of synthesis. B. Latteur, *Oleagineux* 3, 297-303 (1948).

Methyl Cellulose

As a gum, protective colloid, and thickening agent, methyl cellulose has been widely used in many diverse products. The four commercial grades are odorless, white to yellowish, fibrous solid materials with viscosities in two per cent solution of 50, 100, 450, and 1,000 centipoises. Methyl cellulose may be used instead of the various vegetable gums and has the advantage of uniform properties and purity not always found in the natural gums.

Emulsification of oils and fats in methyl cellulose is achieved by simply stirring vigorously into the solution or jelly and passing the mix through a homogenizer. Fatty oils are more easily emulsified than mineral oils, and these more easily than essential oils, but in general a two-10 per cent solution of methyl cellulose is a satisfactory medium. Addition of a trace of wetting agent is sometimes an advantage.

Methyl cellulose can be used as a suspending colloid in washing powders which contain synthetic detergents, and for thickening detergent solutions of the secondary alkyl sulfate type such as "Teepol." As a filler for soaps the following solution is prepared.

	Parts by weight
Water	120
Caustic soda, 38°Be	40
Methyl cellulose	40

A synthetic-detergent bar has been prepared from the following:

	Parts
Paraffin	6
Carnauba wax	4
Beeswax	2
Triethanolamine	1
Sodium lauryl or cetyl sulfate	17
Bentonite	22
Starch	28
Methyl cellulose	1.5
Water	13.5
Soluble casein	5

Methyl cellulose will often help improve the consistency of shaving creams, especially if they are based on caustic potash. Addition of the material in an amount up to eight-nine per cent may be made. A stock solution is prepared, for example of four per cent concentration, by stirring four parts by weight into 50 parts of boiling water and allowing to cool to 40°C., when 46 parts of cold water are added. Alternatively, the cellulose may be wet with a little boiling water, allowed to stand overnight, and then stirred into the bulk of the water. R. J. Leddon, *Manufacturing Chemist* 19, 287-90 (1948).

New Carbide Booklet

A new and revised edition of the booklet, "Physical Properties of Synthetic Organic Chemicals," was issued recently by Carbide and Carbon Chemicals Corp. Designed as a condensed guide for users of organic chemicals, the 12-page booklet contains data on applications and physical properties for more than 185 synthetic organic chemicals. The material is presented in tabular form for ready reference.

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Metal Cleaners

Alone or in combination, "Calgon Metal Cleaner No. 21" and "Calgon Emulsion Cleaner," may be used for cleaning a wide variety of metals and alloys. The former is designed for spray-cleaning in metal-washing machines. It prevents building up of lime scale or other deposits on pipelines, pumps, heating coils etc. as a result of water hardness. Glassy sodium phosphate in the cleaner ties up calcium and magnesium salts in the water so that they cannot form deposits. The "Emulsion Cleaner" is a white creamy emulsion of an organic solvent in a small amount of water. Both cleaners will rinse off a metal surface with hot or cold water. They have no known harmful physiological effect.

Ion Exchanger

Now available from the Resinous Products & Chemical Co. of Philadelphia, is a new high-capacity synthetic-resin cation exchanger in bead form that is free from odor, taste, and color-throw. Its trade name is "Amberlite IR-105." Its chemical stability and high capacity are of special interest in applications such as the softening, dealkalization, and deionization of water. The resin derives its activity from sulfonic acid groups, and may be employed either in the sodium or hydrogen cycle.

The Large-scale Detergents

Owing to differences in the internal economies of different countries and in their access to raw materials, three main types of synthetic detergents emerged from World War II. In America these were the alkyl aryl sulfonates, in Britain the secondary alykyl sulfates, and in Germany the alkyl sulfonates. Although differing chemically, all three types had one factor in common—their independence of fatty raw materials. In America and Britain petroleum was the principal source of raw material. In Germany, where supplies of petroleum were limited, the principal source was the synthetic hydrocarbons made by the Fischer-Tropsch process from coal.

For the future, two main trends are indicated: Increase in demand for edible fats resulting from increased population and increased standards of living, and parallel to this, a growing demand for detergents. Reliable authorities consider that fats will remain in short supply for at least ten years. The distinction between edible and nonedible fats grows daily of less significance due to the improvements in refining methods and subsequent processing of fats. Synthetic detergents based on petroleum may conceivably play an important part in alleviating the oils and fats shortage, since first call on the latter will be for food, and large-scale production of synthetic detergents can be brought into operation in a relatively short time at relatively low cost. F. H. Braybrook, *Chem. and Industry* 1948, 404-7, 409.

Ion-exchange Resins

A study of the rates of anion exchange in resinous exchangers shows that the step which determines the rate is the diffusion of ions through the gel structure. The rate depends on such factors as (1) particle size, (2) ion species, (3) concentration, (4) temperature, (5) degree of exchange saturation, (6) degree of hydration of resin, and (7) degree of mixing of exchangeable ions. R. Kunin and R. J. Myers, *J. Phys. & Colloid Chem. 51*, 1111-30 (1947).

Nature of Emulsions

Concerning the structure of the stabilizing film in emulsions, with water-soluble soaps, synthetic detergents, and wetting agents which promote an oil-in-water type of emulsion, the adsorbed film is monomolecular in thickness. The monolayer is in a very compressed gaseous state and the oil phase is almost entirely eliminated from the interface. The degree of stability of the emulsion appears to be determined by the lowering of the interfacial energy produced by adsorption, and by the viscosity of the adsorbed monolayer. All emulsions appear experimentally to coalesce at a greater or lesser rate on keeping, indicating that they are all thermodynamically unstable. A. E. Alexander, *Chem. Age* 59, 12 (1948).

Winterizing Oils

Preliminary chilling of linseed, soybean, corn, and peanut oils at 20-40°F., or cottonseed oil at 40-50°F., causes the separation of a cloud-forming precipitate of the minor constituents, such as phosphatides, waxes, and pigments. Addition of 0.5-5.0 per cent of aqueous electrolyte permits removal of the sludge by means of a centrifuge. After removal of water by heating at 200-20°F., the purified oil was less hydrophilic. F. P. Parkin and G. N. Walker. U. S. Patent No. 2,425,001.

Aluminum Stearate Study

The composition of a number of aluminum stearates prepared in different ways was investigated. Extraction with different solvents reduced the proportion of stearic acid to that of a monobasic soap. The excess of stearic acid normally found is adsorbed, and can be removed by solvent extraction. Titrations proved the assumption that aluminum stearate is only monobasic, and that neither the distearate nor the tristearate exists. W. Gallay and I. E. Puddington, *Can. J. Research* 26B, 155-60 (1948).

Waste Effluent

Synthetic detergents and auxiliary agents of various kinds are used in the different steps of processing textiles. A new problem in this connection involves purification of the waste effluent liquids. For example, in some districts where wool washing with soap is conducted on a large scale, the effluent is purified by acidification with sulfuric acid and separation of the mixture of wool wax and the fatty acids derived from the soap. Sometimes the hardness of water is sufficient to precipitate soap. Neither method of purifying sewage is operative with synthetic detergents, so that it is possible that local legislation may rule against delivering effluent containing such agents into the sewers and streams. Some simple method of breaking emulsions containing synthetic detergents is urgently required. Manufacturers of these detergents would be well advised to undertake research in the field. J. B. Speakman, *Chem. and Industry* 1948, 456-60.

SANITARY PRODUCTS

A SECTION OF SOAP

WARNING against the peril of all insecticides, weed killers and the like in contaminating foods and creating a serious health hazard, the *Journal of the American Medical Association* in a recent editorial called for stricter control of the sale and use of such materials, voluntarily by manufacturers if possible, and if not, then by legislation. Not only are the newer chemical products condemned, but also some of the older agricultural insecticides. Saying that several thousand new products have come on the market about which little is known of the toxic effects on humans, the JAMA states that something should be done "before possible tragic consequences occur."

That this sort of thing coming from an influential body such as the AMA can do a lot of unjustified harm by stampeding some legislative bodies and enforcement officials into hasty and ill-advised action is obvious. Why not a consultation with state experiment stations and USDA? And what about the new insecticide laws, including the new federal act? Bluntly, we do not believe that the problem is nearly as serious as the alarming tone of the JAMA editorial indicates. Nor do we believe that this publicity,—the word is used advisedly,—will aid in an honest solution, but mostly will alarm the unknowing, including a good segment of AMA membership.

TO support the price of carnauba wax in the face of large stocks in Brazil, no small part of which is a heavy carry-over from last year, the government of that country has adopted a law placing a price floor beneath sagging carnauba prices. Said an executive of an American floor wax manufacturing firm: "The effect of this law was to raise prices of carnauba wax artifically somewhere in the neighborhood of fifteen cents a pound just before the news reached this market . . . No one in the United States has been able to obtain a copy of this law nor are all pertinent provisions known to any one person here."

So, in addition to the law itself, the passage of which has been threatening for the past eight or nine months, there is also an aura of mystery and uncertainty which keeps American importers and users in the dark. That these latter are hot under the collar over the entire situation, is, however, not an uncertainty. In looking back over some of the prices which were paid for carnauba during the past five years, their anger over this latest move in Brazil is quite understandable.

And, their mood is very obviously to encourage in every way possible any and all carnauba substitutes which are or may become available. Not only price control, but the unsatisfactory method of handling exports as a whole continues to keep the ire of American users aroused.

RATS must go, says the health commissioner in heralding the resumption of a campaign spearheaded by the New York City Health Department and in which 15,000 members of municipal departments are taking part. In what is termed the greatest all-out drive of its kind ever conducted by a large city, the ultimate aim is to wipe out the city's rodent population. Actually, the rat campaign is part of an over-all sanitation drive to remove the cause as well as the rats.

The growing consciousness of the disease potential set up by rats as well as the millions of dollars worth of property loss for which they are responsible adds to the public desire to widen their control. To the producer and distributor of rodenticides, this public trend should be an invaluable sales aid. His help in keeping these anti-rat drives stirred up means money in the bank. No city or town is too small to get into the fight. Officials and newspapers will always lend a hand. As a good sound business investment, help keep the idea alive. Rats must go!

Sprayers.. U

A Discussion of Recent Improvements in Spraying Equipment for Application of Liquid Insecticides

By

THE period of the past ten years has been a rather remarkable one in the development of improved spraying techniques and new type sprayers for the application of liquid insecticides and other such sprayer-applied liquid products. Ten years ago most of the household insecticide used was applied either with the cheap "squirt gun" hand sprayer, which has long been the bane of the household insecticide business, or with one of the somewhat better-made continous hand sprayers, or with a power sprayer. Electric steam sprayers had been tried, had enjoyed quite a wide popularity for a year or two, in the mid-thirties, but had been largely discarded because of operational complications.

Today there is a whole list of new application principles which either have been or are being tested to determine what permanent place they will have in the industry. A wider variety of liquids is being sprayed in a widening list of fields, and sprayer improvements introduced into one field have been quickly adapted by other users of the spraying principle. A number of these newly discovered spraying principles, and spraying devices, were war-time developments. They are being adapted with considerable success in many cases to peace-time pursuits. The net result of all this progress has been to make possible an improvement in spraying techniques and to make available to those concerned with spray application of liquids a much wider variety of more efficient sprayers.

We will limit our discussion, for the sake of simplicity, to the use of spraying equipment for the application of liquid insecticides. It may be said, however, that much of the atomizing machinery to which we refer may also be used for other products like deodorizing sprays, disinfectants and liquid glass cleaners. While we ordinarily refer to these types of apparatus as sprayers, we also include in this category vaporizing equipment, certain aerosols, propellants and atomizers, by which names sprayers at times are described.

One does not have to go back more than a few years to find users of spraying equipment in the liquid insecticide field demanding improvements. Ten year ago, the number of toxic agents for insect control was not in the state of complicated development one finds today. The main use for sprayers was for the dispensing of rather dilute, petroleum-base liquid insecticides in the home, in the farm stable, in stores and food establishments, and to a lesser degree in industrial plants and public buildings. Pyrethrum was the first toxicant used, followed by others like rotenone-bearing roots, the "Lethanes" and "Thanite." It is only within about the past five years that the newer synthetic insecticides like DDT, DDD, chlordane, BHC, "Toxaphene" and others have gained popularity.

During these earlier days, about the only types of sprayers available were intermittent and continuous hand sprayers, as well as the small metal mouth or plunger type sprayers for use mainly with insecticides packed in bottles. All of these atomized fly spray in rather large droplets and exhibited numerous serious defects. A little later, power sprayers were offered to those who used liquid insecticides in larger quantities. More highly concentrated sprays also came on the market. The power sprayers met with considerable sales resistance because of their higher cost. This limited the volume. They also developed imperfections which turned users against them. Certain of these earlier power sprayers were patterned after paint sprayers. Some units operated from a compressor, while others contained a built-in motor. The latter were the more popular and less expensive.

In considering up - to - date sprayers, three aspects are of interest, the type of insecticide to be sprayed, the material from which the sprayer is built, and the method used to vaporize the liquid.

Referring to the type of insecticide to be sprayed, several properties need close examination. These include the concentration of the spray, the toxicants used and the solvents present. Some sprayers are designed to apply dilute insecticides or both dilute and concentrated products, whereas

..Up to Date

By Dr. E. G. Thomssen

others will atomize only the concentrated sprays. In the former type, we cite as an example the sprayers that propel by the use of compressed air. The latter include the steam generated fog type.

Insecticide toxicants are diluted in practically every case to form a finished liquid insecticide. The solvents or diluents used include, petroleum distillates or hydrocarbons, water and xylenes. The toxicants are liquids, solids and resinous extracts. since the finished insecticides vary in both physical and chemical characteristics, sprayer manufacturers have had to fit their designs to meet these varying conditions and in certain cases, like the thermal generated fog type, have had to alter their designs frequently to handle the insecticide properly. As a matter of fact, makers of certain types have had to recommend limiting the spray dispensed to products specially selected to fit the sprayer.

The material from which the sprayer is constructed is extremely important. Hand sprayers, unfortunately, are usually made to sell at a price. Hence tinplate, wood and composition rubber gaskets with steel and wooden accessories comprise the materials entering their manufacture. These sprayers last for only a short time, especially if the sprays contain any water or if the sprayers are kept in damp places. Fortunately they are normally used with sprays consisting mainly of petroleum hydrocarbons and this aids their preservation. The more expensive types include brass, stainless steel and plastics in their make-up. Where a sprayer is to be used for industrial purposes, or in larger scale agricultural applications, it is far more economical to use a sprayer made from durable materials. Too often a good insecticide has been criticized unfairly because it was used in a poorly constructed, cheap sprayer.

The propellants used include compressed air, steam, compressed gas, steam generated fog, thermal generated fog and dry gas. As the dry gas propellant requires a special formula insecticide and this would carry us into a detailed discussion of aerosol bombs, we merely mention this in conjunction with sprayers. The subject of aerosol bombs has been so widely discussed in recent years that a repetition of the applications of these devices may be eliminated here. It should be pointed out, however, that the use of this type of application is very popular because of the ease of use in spite of its requiring more inert material than active to produce satisfactory results.

While sprayer manufacturers are not too greatly concerned with concentrated sprays, those in the sanitary chemical industry find the subject important. They are concerned with obtaining the greatest amount of coverage and insect kill with the least amount of toxicant. While petroleum distillates are active insecticidally, they of course do not give as high a percentage kill as the toxicant itself, nor do they exhibit the residual effectiveness which some toxicants possess. In this regard, Lindquist, Schroeder and Knipling * published some interesting results on the use of concentrated sprays for the control of flies and mosquitoes. They first used as their sprayer a modified DeVilbiss paint sprayer and an ordinary hand sprayer employing a capillary tube (0.017 in. Id) instead of the usual larger size siphon tube. The use of this capillary tube in a common household sprayer resulted in a slow settling rate of the spray. Using this principle, they developed a compact, small-size sprayer that atomized concentrated sprays very finely. Models of this sprayer were built and loaned to interested companies to ascertain the demand. Evidently no great interest resulted, as we understand this type has not been marketed up to this time.

On the basis of their research work these investigators concluded that fine mist sprays of concentrated insecticides, that is as little as 0.5 ml. per 1000 feet (comparable in effectiveness to 10-24 ml. of common dilute spray) showed high mortality against flies and mosquitoes. The investigators suggest that fine mist sprays could be most useful in treating large areas like warehouses, stores, hotels and restaurants with small power equipment, eliminating the heavy fog necessitated by the dilute space sprays. Subsequently they

* Soap 21, 7 p 109 & 22, 4 P 145.

Sticking our neck out . . .

ATTEMPTING to survey the sprayer market is a tricky job, and one which the author of this article, and we of "Soap and Sanitary Chemicals," might well have found it more diplomatic to leave to someone else. We recognize that any work of this sort, particularly when performed for the first time, must necessarily be incomplete and perhaps inaccurate in some of its detail. If we have failed to cover any particular type or make of sprayer, or given incorrect details on those types we have covered, we offer this advance apology to the manufacturer. In a third installment in a later issue we will be glad to survey any sprayers that have been inadvertently omitted in this preliminary study of the subject.

THE EDITOR

used a paint sprayer and electric fan arrangement in a 340,000 cubic foot room to produce fine atomization with concentrated sprays containing DDT. They concluded that 285 to 310 ml. of concentrated spray containing 10% DDT produced results as good as a 280 gm. dosage of an aerosol containing the same DDT concentration against the common malarial mosquito and house fly.

It is fairly well established, then, that for space sprays fine mists are desirable. Considerable progress in sprayers has been made in this regard. The sprayer manufacturers have come a long way from the early unsatisfactory hand and power sprayers to the fine array we find on the market today.

In order to point out more specifically the sprayer improvements which are available today, we will consider various makes of sprayers which have come to our attention. This does not cover the entire field, but is a fairly full survey of what is available.

We will first consider sprayers that operate on the compressed air principle. This comprises the largest array and uses various atomizing principles.

Compressed Air Sprayers

THE most practical type of sprayer is based on the use of compressed air, frequently in conjunction with an air vacuum suction tube. Such sprayers are the most widely used. When properly made, a compressed air sprayer or atomizer offers the advantages of dependability, durability, quick action and absence of fuss in getting ready for use.

There are numerous types of sprayers that employ compressed air to form a mist. Of these, the commonest, simplest and the least expensive is the mouth sprayer. The principle used in this is expanded with further refinements in more complicated mechanisms. Sprayers of this general type consist of a siphon tube that dips into the liquid to be sprayed. The pressure tube opening is set at a right angle and close to the upper opening of this siphon tube. As one blows forcibly through this air pressure tube, a vacuum is produced in the siphon tube which draws the liquid to its upper outlet. Upon meeting the blast of air at this point, the liquid is broken into droplets and forced into the atmosphere in the direction in which the pressure tube is pointed. Simple variations of mouth sprayers are bulb and hand sprayers. The methods used in these are the same except that the air blasts are developed by muscle power instead of lung power.

The hand sprayers are the type used in the insecticide field in greatest volume. They are a necessary accessory to the use of liquid household insecticides. Considerable improvements have been made in hand sprayers in recent years. The early types were cumbersome, dripped, were difficult to fill, splashed, formed large drops and squirted, and did not operate at all angles. Early manufacturers of liquid insecticides often received more complaints regarding sprayers than they did on their insecticides. They insisted, therefore, upon refinements and appealed to sprayer manufacturers to produce a satisfactory sprayer to fit their requirements. As a result, hand sprayers are offered today in various sizes and prices that make space and residual sprays more effective in killing insects. Both continuous sprayers which usually come with a brass spray nozzle, that makes these sprayers more costly, and intermittent types, are available. The intermittent type, because it costs less, is the one more generally employed in the household, in small restaurants, in stores, in offices, in stables, and in similar places. Leading manufacturers of hand sprayers include Lowelll Manufacturing Co., Hudson Manufacturing Co., and Dobbins Manufacturing Company. These sprayers run from about half a pint up to one quart in capacity and in certain makes of the larger sizes, have adjustable spray nozzles to fit the requirements of the user for applying the insecticide as a space spray, as a residual spray, for use on crawling insects and for clothes moths.

Hand sprayers are hardly suitable for general operations in the institutional, commercial, and sanitary service fields where large quantities of spray must be applied. To minimize the manual effort involved in operating hand sprayers, the first improvements came in the form of knapsack and small tank type sprayers. Their capacities run from 2 to 5 gallons. Like the early hand sprayers, these sprayers were first designed mainly for the spraying of other than insecticides or for application of agricultural insecticides on vegetables and trees. They are activated by a pressure piston, air pump operated, with a direct up and down movement on the cylinder, or an arc movement like a lever handle on a water pump. A pressure of as high as 200 lbs. is developed directly on the liquid. This forces the liquid through a spray nozzle, usually made from brass or bronze, attached to about 3 feet of spray hose with a shut-off valve which can be constructed so that it may be locked for continuous spraying. To assure proper mixing of the liquid, some pumps provide for this by air agitation during the operation of the air pump.

Other refinements consist of intake liquid strainers, adjustable or interchangeable nozzles to form either a fog or a continuous stream, and carrying arrangements for the comfort of the operator. This type of compressed air sprayer finds large use not only for applying insecticides, disinfectants, deodorants and other sanitation liquids in hotels, factories, public buildings and restaurants, but is also used by farmers in barns, milk houses, hog pens and poultry houses as well as for spraying truck crops, trees and greenhouses. Among the best known manufacturers of this type of sprayer are Hudson Manufacturing Company and Dobbins Manufacturing Company.

Before passing on to other types of sprayers, a few details on knapsack sprayers may be of interest. One well-known knapsack-type sprayer is made by Lofstrand. Of 3-gallon capacity, this sprayer is made of stainless steel, with machined brass parts and a hose of synthetic rubber. These accessories are most resistant to corrosive and swelling actions. The sprayer may be equipped with four spray nozzles. The flat nozzle is used for DDT residual or larvacide spray-

(*Turn to Page* 151)

Roach Powder Evaluation

A new method for determining the toxicity of insecticidal powders to roaches is discussed

By Frank O. Hazard
Wilmington (O.) College

TO determine the lethal effectiveness of insect powders various procedures have been employed. The tower and tray methods have been used extensively by the laboratories of Rohm and Haas Company in studies of synthetic and combination powders. (*SOAP*, May, 1944, and May, 1946). McGovran and Piquett in 1946 described a method which they used in determining the comparative toxicity of powders. This involved the use of crystallizing dishes each having a circular area in the bottom covered with a uniform deposit of powder.

Lang and Welte in 1930 described a bell jar technique which they used to test the toxicity to flea beetles of dusting materials containing nicotine.

At present the use of a powder band or track-through procedure is in general use.

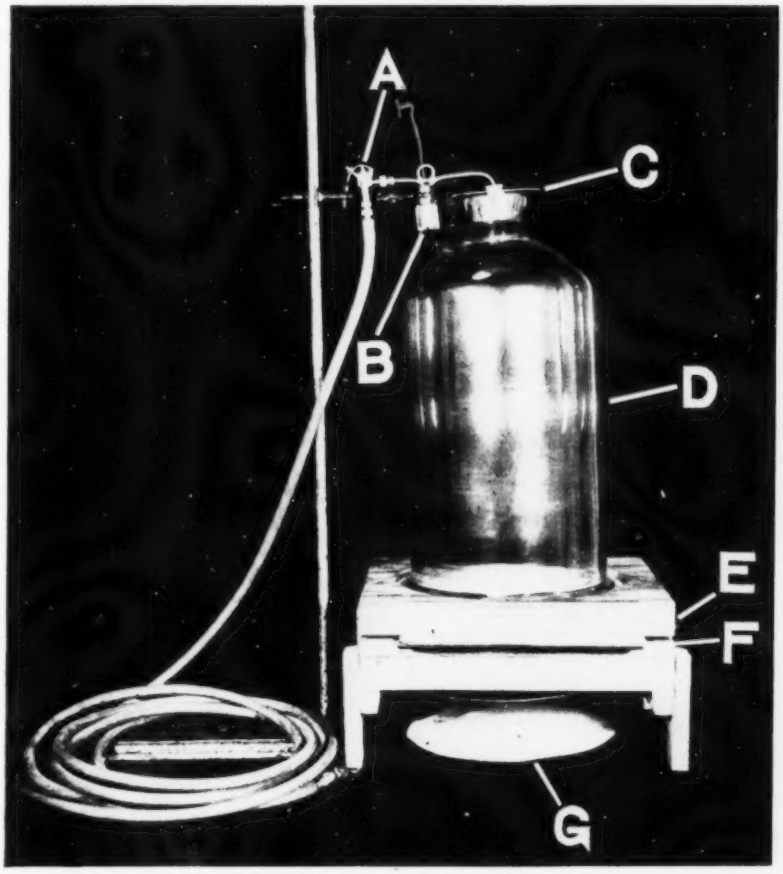
The present study was sponsored by the National Association of Insecticide and Disinfectant Manufacturers in 1947 having as its objective the standardizing of a procedure for evaluation. Powders were tested largely against German roaches (*Blattella germanica* L.); however, the method served equally well for the American and Oriental species (*Periplaneta americana* L.) and (*Blatta orientalis* L.).

By the method described here direct application of the powder to the roaches results. However, the bulk of the material passes through a screen onto a glass plate. Both surfaces of the roaches are dusted, the dorsal by direct application, the ventral by material blown upward from the glass plate. At no time are the roaches in contact with the deposit on the glass plate. Nevertheless an appreciable quantity of powder adheres to the meshwork of the screen over which the roaches travel during the exposure period. The procedure thus effects a combination of direct dusting and "track-through" techniques.

Method

THE apparatus consists of a bell jar measuring 18½ inches in height with an inside diameter of 8½ inches. (Fig. 1, D). In the top of the jar

Figure 1. Apparatus described for insect powder evaluation.





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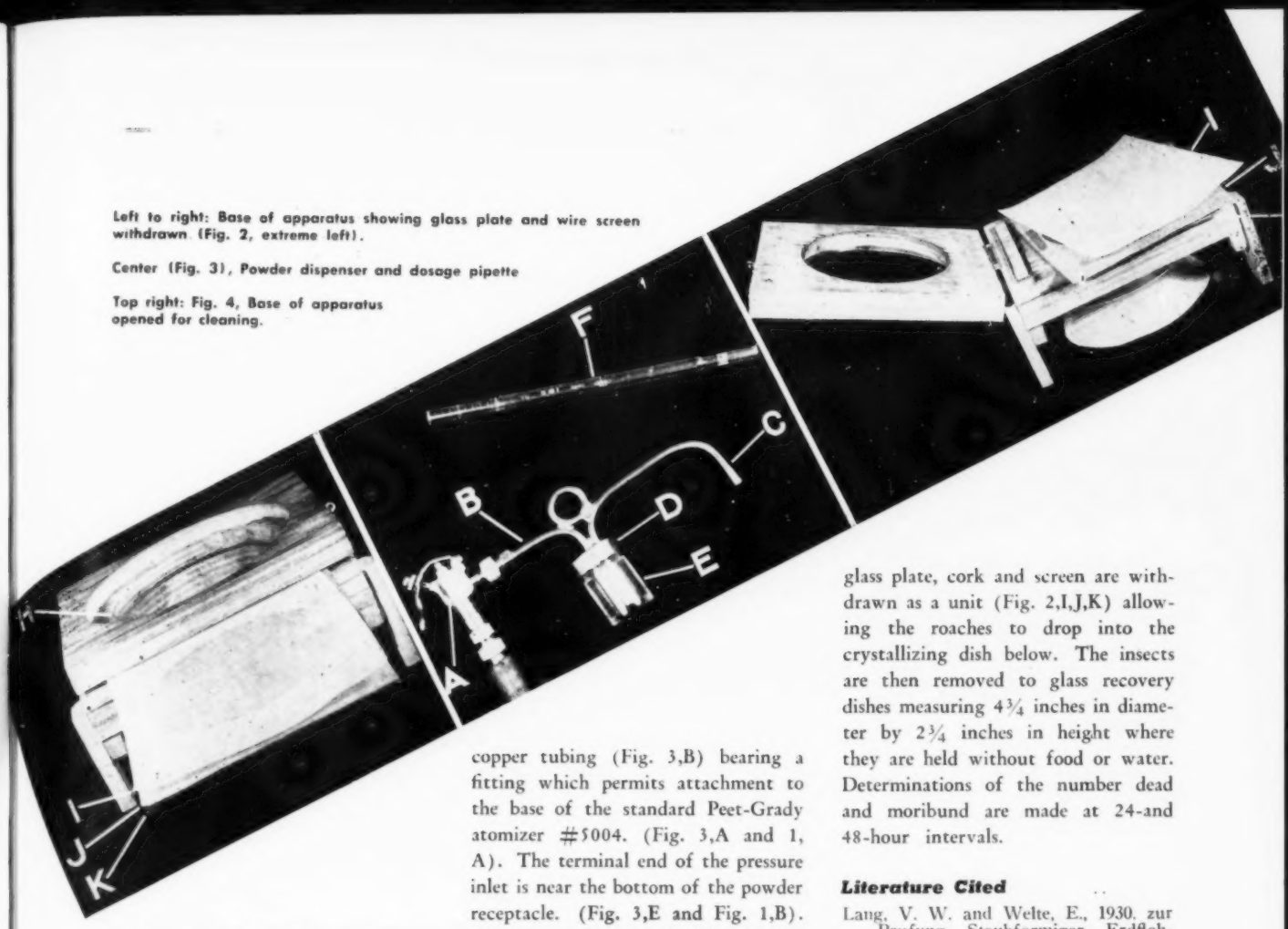
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Left to right: Base of apparatus showing glass plate and wire screen withdrawn (Fig. 2, extreme left).

Center (Fig. 3), Powder dispenser and dosage pipette

Top right: Fig. 4, Base of apparatus opened for cleaning.

is an opening 2¼ inches in diameter. The bell jar rests on a wooden base measuring 13 inches by 11 inches. (Fig 1,E). A hole through the center of the base equals the inside diameter of the bell jar. Horizontally, the block is divided into two parts. The top part operates on a hinge in a lid-like fashion. It is lined with cellulose acetate which extends above the surface, forming a lining for the lower flared-out portion of the bell jar. (Fig. 2,H). Extending through the horizontal division is a glass plate measuring 10 inches by 14 inches. (Fig. 2 and 4,K). On the glass plate is a sheet of pressed cork of the same size (Fig. 2 and 4,J). The cork layer has a hole in its center equal to the inside diameter of the bell jar. On the top of the cork is a 16 mesh wire screen of the same dimensions as the glass plate. (Fig. 2 and 4,I). Beneath the wooden base is a crystallizing dish which receives the roaches after dusting. (Fig. 1,G).

The powder dispenser consists of a pressure inlet of 3/16 inch copper tubing (Fig. 3,B) bearing a fitting which permits attachment to the base of the standard Peet-Grady atomizer #5004. (Fig. 3,A and 1, A). The terminal end of the pressure inlet is near the bottom of the powder receptacle. (Fig. 3,E and Fig. 1,B). This receptacle is of plexiglass having inside dimensions of 0.672 inches in diameter by 1.250 inches in height. The receptacle threads into a brass top one inch in diameter. (Fig. 3, D). The discharge jet is of 3/16 inch copper tubing. (Fig. 3,C). Its terminal end extends into the top of the bell jar through a plexiglass disc which serves as a cover. (Fig. 1,C). This disc is 1/16 inch in thickness with a centrally placed rubber stopper through which the discharge jet extends.

A pipette with the distal portion cut off is used to measure the dosage on a volume basis. (Fig. 3,F). By inserting the tip of the pipette in the powder while rotating it the desired quantity is obtained.

In conducting tests the roaches are placed on the screen which forms the top layer to the false bottom. (Fig. 1,F). The bell jar is placed in position and the powder delivered at a pressure of eight pounds.

Following an exposure period of from one to three minutes, the glass plate, cork and screen are withdrawn as a unit (Fig. 2,I,J,K) allowing the roaches to drop into the crystallizing dish below. The insects are then removed to glass recovery dishes measuring 4¾ inches in diameter by 2¾ inches in height where they are held without food or water. Determinations of the number dead and moribund are made at 24-and 48-hour intervals.

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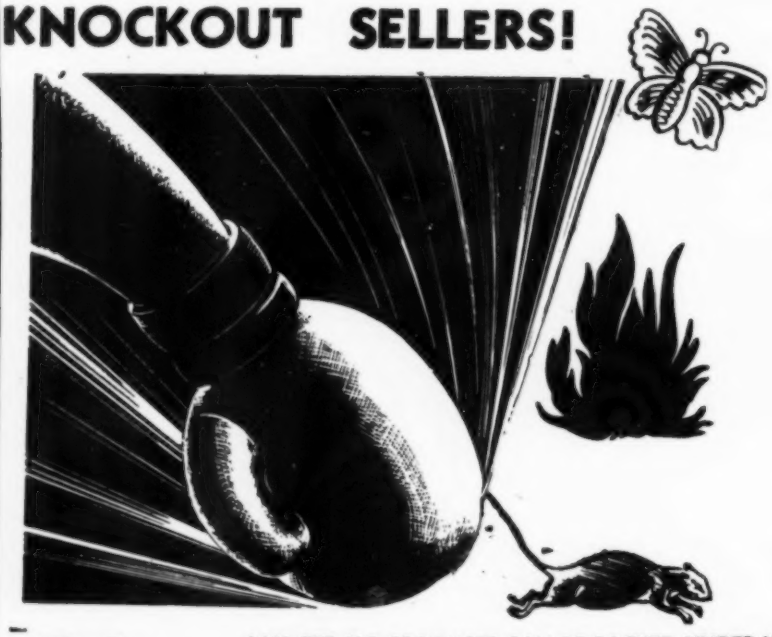
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An attempt to produce a selective insecticide by coating the particles of the toxicant with substances digestible only by specific insects is reported. Phytophagous insects can digest hemicelluloses, some wood-boring species celluloses, while carnivorous species cannot digest these substances. It is concluded that coating particles of a highly indiscriminate insecticide like DDT, may produce a selective insecticide. Such artificially produced selective toxicants may be useful in avoiding the destruction of beneficial insects while at the same time killing certain undesirable species. W. E. Ripper, R. M. Greenslade, J. Heath, and K. Barker, *Nature* 161, 494.

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FLOOR SEALERS AND HARDENERS

By Milton A. Lesser

A GROWING awareness of the advantages resulting from the use of floor sealers and hardeners has been noted during the last decade or so. It has been learned, and the knowledge is spreading, that by the proper use of such products, floors last longer, retain a better appearance, and are easier to maintain.

In contrast to ordinary paints, varnishes, and shellac which form coatings of substantial thickness over the floor surfaces, sealers and hardeners are products which penetrate into and are imbedded in or react with the surface of the flooring without forming a definite coating over it. (1,2) To be effective, sealers and hardeners must be applied to clean new flooring or to floors that have been thoroughly freed, by sanding or other methods, of previous finishes, coatings or other accumulations. "Sealers" is a rather general term used to describe products applied to all types of floors amenable to treatment with these compounds. In a more specific sense, however, sealers refer to those products which are employed on wood, cork and other resilient, absorbent flooring materials. Products designated as "hardeners" are used almost exclusively on concrete and other stone-type floors.

In a sense, the use of sealers is a trend back to the old oil finish, except that in place of linseed oil, specially designed products are being used because they are obtainable in satisfactory quality and are more economical. Developments in the field of synthetic resins have contributed materially to the production of improved floor sealers with better characteristics. Sealers are now established items with manufacturers of materials and equipment used for the finishing and maintenance of floors. Sealers are also being produced by most of the larger paint and varnish manufacturers. This is not surprising in view of the fact that most modern floor sealers consist essentially of specially modified varnish and lacquer formulations.

Requiring fewer applications than ordinary floor varnishes, and differing from them in general mode of application, it is important that floor sealers be used properly in order to obtain the excellent service of which thse products are capable. Correctly employed, sealers yield attractive and durable finishes with a minimum of slipperiness. Easy to clean and to patch worn spots, while calling for much less maintenance attention than other types of finishes, sealers also provide a superior foundation for those who wish to keep their floors well waxed. (1) Sealers, such as those of the varnish type, permit wood, cork, and worn linoleum floors to be refinished quickly without the need for keeping a room out of service for an extended period; an important consideration in these days of crowded living quarters.

Wood flooring is usually provided with a smooth wearing surface. During its laying, however, slight inequalities develop, dirt accumulates and minor scratches occur. Hence reputable flooring manufacturers recommend that newly laid floors be sanded and scraped before applying any type of finish. Similarly, reliable producers of floor sealers advise sanding as the most effective means of cleaning old wood floors prior to refinishing.

Function of Sealers

THE importance of heeding this expert advice becomes quite evident when the function of a wood sealer is clearly understood. As explained by Browne and Downs (3) of the Forest Products Laboratory, "A wood sealer is a kind of varnish or lacquer that, when applied by any of the methods customary in finishing wood, penetrates into the wood just enough to leave no coating of appreciable thickness on the surface, and, on drying, leaves the lumens of the wood cells and pores nearest the surface largely occupied by nonvolatile ingredients of the sealer in such manner that one or more of the following purposes is accomplished: (a) finishing materials applied subsequently remain almost entirely on the surface without loss from penetration into the lumen of the wood, (b) the surface is rendered relatively nonabsorptive of liquids and easy to clean when soiled, (c) a decorative finish of a character not attainable with surface coatings is achieved, (d) the property of moisture exclusion is provided to the degree consistent with the other requirements." The implications of this definition with regard to floor sealers and their advantages as floor finishes are quite obvious.

The advantages of floor sealers are also indicated in a booklet issued by the National Oak Flooring Manufacturers Association. (4) Here it is stressed that ordinary floor varnish and shellac are not recommended for

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oak floors. Such finishes cannot be patched when worn through, thus requiring resanding and refinishing of the entire floor or the alternative of applying new coats to hide the disfigured, worn areas. With modern improved methods employing sealers, floors can be kept permanently clean and beautiful, because the finishes are "patchable." Freshness of the finish, notes the publication, can be easily renewed without showing a patched effect. With these economical finishes areas which are subject to unusual wear, as at doors, in aisles, under desks and the like, may be kept uniform in appearance at all times.

Because of their advantages, penetrating sealers have found growing use on wood floors of schoolrooms, corridors, inside dance floors, skating rinks, gymnasiums, auditoriums and factory and office buildings. Useful for sealing cork floors, such products can also be adapted for use on old linoleum, masonite and "blocks-on-end" floors. After buffing, the sealed floors may be coated with wax, though this is not essential in many cases. Some floor sealers are especially formulated to produce superior hardness and resistance to extremely heavy traffic without recourse to additional coatings, like wax.

It has been said (2) that modern floor sealers may be regarded as thin varnishes prepared to penetrate less deeply into wood than unbodied drying oils, but more deeply than ordinary floor varnishes. Actually there is a lot more to floor sealer formulation than this explanation indicates. Some idea of the requirements are given in Federal Specification TT-S-176a, covering varnish-type floor sealers for wood and cork. Although the manufacturer is given wide latitude in the selection of raw materials and processing methods, he must meet the requirements with regard to non-volatile matter, drying time, water resistance, toughness, flashpoint, viscosity, skinning and odor. Performance requirements are also very definite. When properly applied, the sealer must satisfactorily seal the pores of the flooring by absorption, without leaving an apparent surface film. The wood should have a soft, even sheen without having its grain clouded or obscured. Resistance to staining is also an important requirement. Worn areas covered with the sealer, buffed, and allowed to dry must blend with the rest of the treated area without showing signs of lap marks. The sealer must also provide a satisfactory foundation for a finishing material such as varnish, liquid or paste wax, or water-emulsion wax.

Sealer Formulations

THE manufacture of such varnish type floor sealers is not to be undertaken lightly by anyone not well versed in the properties of resins, solvents and other raw materials. Considerable "know-how" is a prime requisite in this specialized field where new synthetic resins and improved solvents are constantly being developed. Quite indicative is the following formula (5) for a penetrating sealer or mopping varnish made with a modified phenolic resin:

Modified phenolic resin Beckacite 1123*)	100 lb.
Four-hour, heat-bodied linseed oil, viscosity X	5 gal.
Dehydrated castor oil, viscosity Z-2.	5 gal.
Refined fish oil, viscosity Z	5 gal.
Litharge	1 lb.
Mineral spirits	63 gal.
Cobalt naphthenate drier (6%)	1 lb.
Manganese naphthenate drier (6%)	1 lb.

* Made by Reichhold Chemicals, Inc., Detroit.

Heat the resin, litharge and the linseed and castor oils in an open kettle to 550°F. and hold one hour. Add the fish oil and hold at 530°F. for 15 minutes. Cut off heat, cool to 475°F. and thin. Then add the driers.

This yields 85 gallons of sealer with a non-volatile content of 85 per cent. It impregnates and strengthens the flooring and repels water. Two coats, applied 24 hours apart, make a good finish that will not discolor the wood. Applied to gymnasium floors (a severe test), the finish will not show rubber "burn."

Also illustrative is another floor sealer of the varnish type made with an alkyd resin: (5)

Alkyd resin (Rezyl 823-1,* 50% solids)	42.65 parts
Mineral spirits (V.M. & P. Naphtha)	24.90 "
Terpene type solvent (Terpene B)	3.24 "
Lead napthenate (24%)	0.21 part
Cobalt napthenate (6%)	0.27 "

* Made by American Cyanamid Co., New York.

Methods of Application

AS already indicated, the method of applying a sealer is an important consideration if best results are to be obtained. Since the composition may vary quite considerably among different manufacturers, directions for using the product should be fully adequate and carefully followed. Sealers should be applied only to a thoroughly clean (preferably sanded), dry floor. In general, floor sealers may be brushed on the floor with a wide brush or mopped on with a squeegee or wool applicator. If being applied to a wood floor, the sealer should be worked first across the grain and then with the grain. After a suitable interval, which must be specific for the product applied, the treated floor is buffed with a power machine using steel wool. One application of sealer may be sufficient but a second treatment, plus buffing, is usually recommended for new floors or for floors that have just been sanded. The interval between the two treatments should also be indicated by the manufacturer's directions. Some producers recommend that their sealer be diluted with mineral spirits (painter's naphtha) when treating old wood floors.

When floors are to be stained, the staining procedure is generally a separate operation with most finishing methods. Where floor sealers are used, however, the stain may be incorporated in the first coating of sealer applied to the wood surface. For this reason, some products are supplied in colors as well as in the colorless form.

It is long-established practice when treating open-grain woods, like oak and other hardwood floors, to apply a wood filler to seal the pores before going on to the next finishing operation. With modern floor sealers the practice varies. Many producers advocate the use of fillers on open-grained floors before applying a sealer, while others recommend that this step be omitted. Of interest in this con-

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nection are the recommendations of the National Oak Flooring Manufacturers Association. (4) A filler is advocated when sealers are used on oak floors in homes and apartments, but is not considered necessary for other classes of buildings.

Lacquers based on cellulose derivatives have a well established place as wood sealers. Most such lacquers contain nitrocellulose, resins, plasticizers and volatile thinners. The nitrocellulose imparts the requisite quick-drying, hardness, toughness and sealing properties to the lacquer. Resins, both natural and synthetic, provide adhesion and elasticity and also contribute to the total solids content. Plasticizers provide flexibility. The thinner, a careful blend of volatile solvents, acts as the vehicle. (6, 7)

Lacquers are also used in the production of rather specialized floor sealers. For example, when wood floors are being treated for the removal of nondrying floor oils,—commonly used as an inexpensive floor dressing (8)—the surface is first sanded and made dust-free. It is then sealed with a lacquer-type sealer. Following such treatment, the application of wax and the use of a buffing machine are optional. The lacquer sealer used in such cases is designed to seal the oil within the flooring. It thus serves to prevent bleeding of the oil with sussequent marring of the finished surface. Such a sealer also acts to smooth and integrate the floor surface, giving it a finished appearance and providing a base for wax. (9)

The standards for such compositions are available in Federal Specification TT-S-171. This gives the requirements of lacquer-type floor sealers for use on oiled wood floors. Such a sealer must contain not less than 14 per cent of nonvolatile matter, of which at least 20 per cent should consist of nitrocellulose. To be furnished in "natural" color, the floor sealer must have sufficient fluidity to permit application with a bristle brush or a lamb's wool mop. Required to satisfactorily seal the pores of the wood, the lacquer sealer should leave the wood surface in such a condition as to provide a satisfactory foundation for finishing materials like varnish, liquid or paste wax, or wax emulsion.

Shellac, called (10) the oldest type of wood sealer, is not a floor sealer in the modern meaning of the term. However, shellac is still very extensively used because it dries so rapidly that a floor may be finished or refinished and put back into service within one day. A shellac coating is hard and resists abrasion, but it is susceptible to water and turns white on contact with moisture.

According to Helphanstine, (1) shellac for floors should be bought in the form of five-pound cut shellac varnish. It should be pure shellac unadulterated with cheaper resins. The correct thinner for shellac is 188-proof No. 1 denatured alcohol. For application, five-pound cut shellac should be thinned with one quart of thinner per gallon. Best results are obtained with three coats of shellac, allowing a suitable drying interval between applications. If wax is to be used over this floor finish, it should not be applied for at least eight hours after the last coat is put down. A paste wax should be used rather than an emulsion wax since the water content may whiten the shellac.

Up to about 1936, (11) and for many years previous, floors were commonly finished with repeated applications of hot linseed oil, each application being buffed by hand. When the surface was saturated with oil, it was waxed and maintained by waxing at proper intervals. Because the unbodied drying oil penetrates quite deeply into the wood, a good many applications were needed. Though the process was quite laborious, the finish was very durable, greatly lessened splintering, did not show scratches, and was readily patched at worn places without the need for refinishing the entire floor. Although such finishes darkened with age, they may be considered the forerunners of modern floor sealers, particularly the varnish types.

Trend in Sealers

As years passed, the drying oil finish was increasingly adulterated with non-drying mineral oils. These adulterations had the effect of preventing the drying and hardening of the linseed oil and kept the finish tacky so that clinging dirt and grime quickly discolored the surface. Because of these adulterations, drying oil finishes fell into disrepute. As previously mentioned, the trend is back to these old type oil finishes, but now they have taken the form of floor sealers.

Bodied oils, made more viscous by heating or chemical treatment, are quite useful on floors subject to heavy wear. These bodied oils are prepared to penetrate less deeply into the wood than unbodied drying oils. (1) A mixture of three parts of boiled linseed and one part of turpentine makes a good preparation. It shoud be rubbed well into the wood, and after a few minutes the surplus oil wiped off to permit absorption. (5) Floors are treated with steel wool to maintain a bright, clean surface, but some degree of darkening cannot be avoided. The oil may be colored if desired. Floors so treated may also be waxed.

Use of Hardeners

CONCRETE is a favorite floor material. Cost of constructing concrete floors is moderate and maintenance is simple. Very important is the fact that concrete is durable. It does not rust, rot, or burn. (12) The long life of such floors may be assured by obeying certain fundamental principles during construction and by the use of proper materials. In time, however, even well-made concrete floors may show a tendency to "dust" and "sand." Floors that show such tendencies may be improved with one of several materials which serve to harden and bind the surface. (13) More important is the fact that the use of such hardeners may prevent such deterioration. (14)

Properly treated concrete may be made impervious and thus resistant to the action of many substances which would attack other floor finishes. (12) Not only does the use of hardeners improve the mechanical properties of concrete floors, but they also aid in making the surfaces more resistant to chemical influences. (15) In addition, other more specialized penetrating treatments are available to protect



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concrete from chemical attack by certain substances.

Basic Government investigations (16) made some years ago, plus other studies, have put concrete floor hardening treatments on a firm basis. These treatments are not cure-alls for poor materials or workmanship and will not make a perfect wearing surface for a poorly built floor. Substances recommended by authorities (13, 17) for hardening and binding the surface include: magnesium fluosilicate, zinc fluosilicate, sodium silicate, aluminum sulfate, zinc sulfate, Chinawood and linseed oils, and paraffin. Sometimes paints are applied after treatment with these agents as a further protective measure.

The quantities of these several solutions required to treat floors will vary, of course, with the porosity of the concrete. As a rule, one gallon of any of the solutions will be needed for each application on 150 to 200 square feet of floor surface. Cleanliness and freedom from paint, oil, plaster, or any other foreign material are essential for effective treatment. A dry floor assists penetration. When properly applied, these materials increase the wearing properties, prevent or reduce dusting, and facilitate the sanitary maintenance of floors.

Composition of Hardeners

SERVING to harden the concrete through chemical reactions, (18) the fluosilicates of magnesium and zinc give good results and are well recommended. (12, 13, 17, 19) Either of the fluosilicates may be used separately, but a mixture of 20 per cent zinc fluosilicate and 80 per cent magnesium fluosilicate appears to give better results. In preparing the solutions, one-half pound of the mixed salts should be dissolved in one gallon of water for the first application and two pounds per gallon for subsequent applications. Although the fluosilicates are readily available and can be sold with adequate diluting instructions, some manufacturers make up prepared solutions for immediate use.

The solutions may be mopped or sprinkled on the concrete floors and then spread evenly with mops. Two or three applications should be given; allowing the surface to dry between treatments. Generally, from three to four hours suffices for absorption, reaction and drying. After the final application has dried, the floor should be mopped with water to remove encrusted salts and to prevent the appearance of white stains. After thorough drying, the fluosilicate-treated floor may be painted.

Magnesite composition floors subjected to much traffic may also be advantageously treated with fluosilicates. (2)

In addition to its extensive use on industrial concrete floors, solutions of sodium silicate have also been described (16) as suitable for "home" treatment. Although special concrete solutions of sodium silicate are available, (20) commercial sodium silicate is quite suitable for floor treatments. A viscous solution containing about 40 per cent of sodium silicate; it needs thinning in order to penetrate concrete. A good solution consists of three gallons of water to each gallon of silicate. Two or three coats are used, allowing each coat to dry thoroughly before the next is applied. Scrubbing each coat with stiff fiber brushes or scrubbing machines and water will aid penetration of the succeeding applications. (13) Although silicate treated floors are not particularly well suited for painting, (19) they can be painted if the heavy surface silicate coating is removed by thorough scrubbing with hot water and allowing the floor to dry fully. (17)

Also termed suitable for "home" treatment, aluminum sulfate solutions have given satisfactory results on concrete floors. (16) To be prepared in a wooden or stoneware vessel, the solution consists of about 2½ pounds of aluminum sulfate per each gallon of water. This should be acidified with not more than one teaspoonful (⅛ oz. or 4 cc.) of commercial sulfuric acid for each gallon of water. For the first application the solution may be diluted with twice its volume of water. Full-strength solutions are used for subsequent treatments; allowing 24 hours between each application.

It has been found (16) that zinc sulfate treatment yields a very hard and uniform surface which is, however, darker than the original concrete. According to the method recommended by the Portland Cement Association, (13) the required solution contains 1½ pounds of zinc sulfate and a teaspoonful of commercial sulfuric acid in each gallon of water. The solution is applied in two coats; the second treatment being given four hours after the first. Just before the second coat is applied, the surface should be scrubbed with hot water and mopped dry.

Oil treatments for concrete floors are considered especially useful in dairies, pickling and packing plants and other food products plants where organic acids and sugar or salt solutions will attack concrete. As pointed out by Boase, (21) in discussing industrial floors of concrete, increased immunity from attack by the weaker acids and alkalies is obtained by a treatment of two or three applications of linseed, tung, or soybean oil. The treatment should not be started until after the concrete has been cured and then dried so that it will better absorb the oil. The oil should be diluted with about an equal volume of turpentine for the first application and should be heated to assist penetration. Boiled linseed oil is preferred to raw oil because it dries more rapidly. The oil may be mopped on; the excess being removed with a squeegee before it gets tacky. According to Boase, it is not necessary to build up a surface film.

It is advantageous in some cases to repeat the oil treatment occasionally, semi-annually for example, after the floor is in service. Such treatment should be given only after the floor has been cleaned thoroughly. Floors may be waxed after oil treatment if it is desired to provide further protection.

Paraffin impregnation offers another means for providing added chemical resistance to concrete floors. The following formula and method, (13) said (22) to be effective for acid-proofing creamery floors, is indicative:

Paraffin wax (mp.150°F.)	4 parts
Turpentine	1 part
Toluol	16 parts

(*Turn to Page* 147)

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Inhibitors for Neutralizing the Germicidal Action of Quaternary Ammonium Compounds*

By George R. Weber and Luther A. Black
U. S. Public Health Service

INTRODUCTION

IN making swab-rinse plate counts of food utensils sanitized by quaternary ammonium compounds, it has been suggested that an inhibitor (or neutralizer) be used to arrest germicidal action, similar to the neutralization of chlorine by sodium thiosulfate. Such an inhibitor is necessary in certain investigations of quaternary ammonium compounds, as in evaluations of their germicidal efficiency. Compounds such as lecithin (1, 2, 3) and naphuride sodium (4) which have previously been used for this purpose, and certain other anionic and non-ionic detergents were studied with reference to their possible use as inhibitors.

PROCEDURE

General: Experiments hereinafter reported were carried out at room temperature (approximately 24 to 26°C.) employing *Escherichia coli* (or in a few tests a mixed culture from dishwater), generally in phosphate buffer solution of M/320, pH 7.2. However, a few experiments were carried out in unbuffered solution with the pH being recorded by means of a glass electrode. Tryptone glucose extract agar (without added milk) was employed as a plating medium. With low concentrations of quaternaries it also served to arrest their germicidal action, (5) our experiments indicating that this plating medium had adequate quaternary-neutralizing capacity for the concentration of quaternary employed when using *Escherichia coli*. Colonies were counted after incubation for 24 hours at 37°C. inasmuch as no significant change in count was noted when plates were incubated for longer periods, except in limited experiments with mixed cultures which were counted after 48 hours.

Preliminary Screening Procedure

TWO procedures were employed for evaluating compounds for possible use as inhibitors. The first was a gross screening procedure which allowed a rapid evaluation of compounds. Those compounds exhibiting satisfactory inhibitory action by the first procedure were further investigated by a second, more detailed method. The preliminary gross-screening procedure was as follows: Into a petri dish were delivered, (a) phosphate buffer, (b) distilled water, (c) culture of *Escherichia coli* sufficient to give approximately 1300 organisms per petri dish, and (d) inhibitor. Contents of plates were mixed and allowed to stand for 10 minutes. Following this, the quaternary ammonium compound to be tested was added and permitted to stand for 10 minutes, the total volume in each petri dish now being five ml. The plates were poured with tryptone glucose extract agar sufficiently concentrated to result in a normal water content after mixing with the solutions in the plate.

Survivor-curve Procedure

THE second procedure was designed to follow the sequence of exposure which normally would occur in swabbing food utensils, namely, (a) bacteria on dishes exposed to germicide, and (b) bacteria and germicide transferred by swab to buffered water containing inhibitor. Into large test tubes covered with glass caps were delivered: (a) phosphate buffer, (b) distilled water, (c) culture of *Escherichia coli* to give approximately 700 per ml. in final solution, and (d) germicide of a concentration sufficient to establish a survivor curve so that the standard plate count was reduced to zero within approximately one hour or less. In a few instances survivor curves requiring several hours for reduction to a zero plate count were established. The solution (a final volume of 20 ml.) was thoroughly mixed at the time of the addition of the germicide and immediately before the removal of one ml. portions for plating, after stipulated time intervals of exposure to the germicide.

Addition of Inhibitors

AFTER establishing a survivor curve for each germicide, the experiments were repeated with the addition of inhibitors. The inhibitors were introduced after exposure of the test organism to the germicidal solution for periods of 2½ or five minutes, or in some instances, one, two or three hours. At the conclusion of each test, usually of four to six hours duration, the tubes containing the remainder of the test solutions were either placed in the refrigerator at about 5°C. for 24 hours, or held at room temperature for a similar period, and at the end of this time, estimates were made of the number of surviving bacteria. In some instances, at the end of an experiment, the remaining germicide-bacteria mixture was removed from the test tube and the tube was poured with tryptone glucose extract agar and an excess of inhibitor to check for surviving bacteria.

QUATERNARIES STUDIED

QUATERNARY ammonium compounds studied were: Alkyl dimethyl benzyl ammonium chloride, alkenyl dimethyl ethyl ammonium bromide, 9 octadecenyl dimethyl ethyl ammonium bromide, alkyl aryl pyri-

* Augmentation of preliminary report made at Society of American Bacteriologists' 47th General Meeting, Philadelphia, May, 1947.

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dinium chloride, cetyl pyridinium chloride, para tertiary octyl phenoxy ethoxy ethyl dimethyl ammonium chloride, N(acyl colamino) (formyl methyl) pyridinium chloride, alkenyl dimethyl ethyl ammonium bromide in non-ionic detergent, and cetyl dimethyl ethyl ammonium bromide in non-ionic detergent.

COMPOUNDS' INHIBITORY PROPERTIES

A VARIETY of substances was tested for quaternary inhibitory properties, some of which have been previously employed for this purpose. Many compounds were "screened out" because of one or more undesirable property. Substances tested were: lecithin ("Yelkin BTS"); lecithin ("Asolectin"); naphuride sodium, "Duponol WA"; "Tergitol WA 7"; "Triton X 200"; "Triton X 300"; "Triton X 301"; "Triton X 400"; "Triton X 500"; concentrated nutrient broth; concentrated tryptone broth; powdered skim milk; "synthetic" hard water containing calcium, magnesium and iron; activated carbon; sodium oleate; sodium resinate"; "Carbowax 4000"; tetraethanol ammonium hydroxide; ferric chloride; calcium chloride; magnesium cabonate; sodium thiosulfate; urea; lead acetate; potassium chromate; ammonium sulphate; sodium borate; copper sulphate; sodium citrate; yeast extract; zinc chloride; benzyl trimethyl ammonium chloride; Atlas Powder Co. "G 9046 H"; "Tween 80"; "Alkaterge C"; sodium di butyl phosphate; sodium thioglycollate; ferrous sulfate; "Aerosol M"; alanine; and tryptone glucose extract agar.

RESULTS

BACTERIOSTATIC EFFECTS: Table 1 shows results of experiments carried out using the preliminary screening procedure previously described. It will be noted that a culture of *Escherichia coli* sufficient to produce approximately 1300 colonies was employed in a solution of 200 p.p.m. alkyl dimethyl benzyl ammonium chloride. With an exposure period of 10 minutes, the 200 p.p.m. quaternary was sufficient to reduce the plate count to zero. The addition of 20,000 p.p.m. "Carbowax 4000" (a non-ionic detergent) showed neither inhibitory action for the quaternary nor germicidal action for the test organism. "Tergitol WA 7" employed in a concentration of 20,000 p.p.m. was bacteriostatic (probably also bactericidal). However, when added at a concentration of only 2,000 p.p.m., it permitted growth of the test organism and inhibited the action of the quaternary.

Further tests of this type indicated that sodium oleate (6) in a concentration of 20,000 p.p.m. prevented the development of colonies in a petri dish. "Duponol WA" likewise demonstrated bacteriostatic properties in concentrations of both 20,000 and of 2,000 p.p.m.

It should be noted that these tests were gross, in that a high number of organisms was added to plates to show any apparent reduction in colony count in order to expedite preliminary classification of compounds. That anionic compounds such as "Duponol WA" are bacteriostatic and selective has been demonstrated previously in the use of lauryl sulfate broth in connection with coliform tests. (7).

Inhibition of Germicidal Action

IN Table 2 using the survival-curve procedure, the effect of the addition of anionic compounds (8) on the germicidal action of a quaternary is demonstrated. In experiment 111, 10 p.p.m. of the quaternary reduced the plate count to zero some time between 20 and 30 minutes. When "Duponol WA" (100 p.p.m.) was added as an inhibitor after five minutes exposure to the quaternary,

TABLE 1

Preliminary Gross Screening Procedure Demonstrating Positive and Negative Inhibition of a Quaternary and Effect of High Concentration[1] of Proposed Inhibitors on Bacterial Plate Count.

Experiments at room temperature (24-26°C.) pH 7.2	*Escherichia coli* colonies per petri dish
Control	1300
200 p.p.m. QAC[2]	0
20,000 p.p.m. carbowax "4000"	1700
200 p.p.m. QAC + 20,000 p.p.m. carbowax "4000"	0
20,000 p.p.m. tergitol WA 7	0
200 p.p.m. QAC + 20,000 p.p.m. tergitol WA 7	0
2,000 p.p.m. tergitol WA 7	1100
200 p.p.m. QAC + 2,000 p.p.m. tergitol WA 7	1400

[1] Concentration based on volume of solution in petri dish before the addition of tryptone glucose extract agar.
[2] QAC=Quaternary Ammonium Compound (alkyl dimethyl benzyl ammonium chloride)

TABLE 2

Effect of Inhibitors (Anionic) Added To Alkyl Dimethyl Benzyl Ammonium Chloride (10 p.p.m.)

Results expressed in percentages of *Escherichia coli* surviving

Experiments at room temperature (24-26° C.) pH 7.2 Exposure (Min.)	#111	#108	#109	#110
0	100	100	100	100
1	320[1]	60	84	73
4	81	4.2	17	35
5	16	*	**	***
6	7	1.7	8.5	11
10	0.8	2.7	4.7	9.0
20	0.1	1.7	5.3	7.8
30	0.0	1.5	6.1	7.0
60	0.0	1.2	5.2	6.1
120	—	1.5	5.5	6.4
180	—	2.1	5.0	7.9
240	—	2.2	3.8	5.0
(Hours)				
†19	—	1.0	3.5	6.7
†48	—	1.2	1.6	4.5

[1] High count probably due to inadequate mixing.
* 100 p.p.m. duponol WA added.
** 100 p.p.m. tergitol WA 7 added.
*** 100 p.p.m. triton X 200 added.
† Held in refrigerator at about 5° C. after initial 240 min. exposure.

TABLE 3

Effect of an Inhibitor (Duponol WA) Added to Alkyl Aryl Pyridinium Chloride (5 p.p.m.)

Results expressed in percentages of *Escherichia coli* surviving

Experiments at room temperature (24-26°C.) pH 7.2 Exposure Min.)	#199	#197	#198
0	100	100	100
1	61	63	70
2	51	61	65
2½	—	*	—
3	32	55	54
4	21	61	35
5	9.5	44	*
6	—	—	14
10	0.1	47	11
15	0.0	—	—
30	0.0	47	11
60	0.0	40	9.5
240	0.0	35	5.8
300	—	38	6.9
(Hours)			
† 24		36	5.7

* 100 p.p.m. duponol WA added.
† Held in refrigerator at about 5°C after initial 300 minute exposure.



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the plate count remained relatively constant between six minutes and 240 minutes exposure. The count showed only slight reduction, even after being held 48 hours in a refrigerator at about 5°C., following the initial 240 minutes exposure. Experiments 109 and 110 show somewhat similar results when "Tergitol WA 7" and "Triton X 200" are added, but it will be noted that there was a gradual reduction in plant count in these experiments after the addition of the anionic compounds, apparently indicating the germicidal action of the quaternary was not completely inhibited, as well as possible slight germicidal action from the inhibitory compound.

In Table 3 "Duponol WA" (100 p.p.m.) was added to a quaternary (five p.p.m.) after 2½ and five minutes exposure to the germicide. In both experiments 197 and 198 there was a gradual drop in plate count after the addition of the "Duponol WA," but the counts in experiment 197 were consistently higher since the "Duponol WA" in that experiment was added earlier. Similar results were obtained when employing "Duponol WA" against other quaternaries.

In Table 4 a few of the various possible inhibitors which were tested were compared when employed against the same quaternary. With lecithin* and naphuride sodium, the plate counts, after the addition of the inhibitor are relatively constant up to 300 minutes at 24-26°C. and up to 24 hours, when held in the refrigerator at 5°C., following the initial 300-minute exposure. In experiments No. 239 and No. 240 there was a drop in colony count after the addition of the inhibitor. Experiment No. 242 shows an unsuccessful attempt to revive test organisms, which were apparently killed through germicidal action of the quaternary, by the addition of 500 p.p.m. of lecithin after 300 minutes exposure.

Dehydrated nutrient broth (8000 p.p.m.) added after 2½ minutes exposure to a quaternary ammonium compound (10 p.p.m.) was not sufficient to prevent reduction of subsequent plate counts and similar results were observed with dehydrated tryptone. Varying quantities of dehydrated nutrient broth (20,000, 40,000 and 80,000 p.p.m.) introduced into a quaternary test solution (10 p.p.m.) held the plate counts reasonably constant for a period of about 60 minutes (24—26°C.), but at 300 minutes there was an increase in numbers which appeared to be due to growth. This was substantiated by plate counts made after 24 hours, indicating increases in numbers to greater than 500 percent of the initial inoculum.

* Lecithin was carried in "Tween 80" in a ratio of one gram of lecithin to seven milliliters of "Tween 80." All ratios of inhibitor to quaternary are based on actual lecithin content.

TABLE 4

Effect of Inhibitors Added to Alkenyl Dimethyl Ethyl Ammonium Bromide (3 p.p.m.)
Results expressed in percentages of *Escherichia coli* surviving

Exposure (Minutes)	Experiments at room temperature (24-26° C.) pH 7.2					
	#242	#237	#238	#239	#240	#241
0	100	100	100	100	100	100
1	72	74	73	73	70	74
2	33	50	68	61	62	53
2½	—	(a)	(b)	(c)	(d)	(e)
3	2	60	67	45	35	24
4	0.4	58	65	40	34	26
5	0.0	66	72	37	32	24
10	0.0	60	63	26	26	22
30	0.0	61	59	23	25	20
60	0.0	62	60	17	20	17
300	(f) 0.0	—	—	—	—	—
(Hours)						
72	0.0	—	—	—	—	—

(a) Added 60 p.p.m. lecithin.
(b) Added 60 p.p.m. naphuride sodium.
(c) Added 60 p.p.m. triton X200.
(d) Added 60 p.p.m. triton X300.
(e) Added 60 p.p.m. triton X500.
(f) Added 500 p.p.m. lecithin.

Prolonged Exposure to Quaternary

TABLE 5 shows the effect of lecithin added after long exposure of the test organism to a quaternary. In experiment No. 228, even after the test organism was exposed to the quaternary for as long as three hours, the inhibitor (lecithin) was capable of preventing further decrease in plate count. In experiments 226, 227 and 228, plate counts were reasonably constant from the time of the introduction of the inhibitor (lecithin) up to 360 minutes (24-26°C.), but after 1800 minutes, growth was indicated in each instance. Lecithin demonstrated a stimulating action on the growth of *Escherichia coli* after a lag period of not less than about four hours at room temperature (24-26°C.), but at refrigeration temperature (about 5° C.), there was no increase in the number of bacteria after 24 hours.

TABLE 5

Effect of an Inhibitor (Lecithin) Added to Alkyl Dimethyl Benzyl Ammonium Chloride (5 p.p.m.)
Results expressed in percentages of *Escherichia coli* surviving

Exposure (Min.)	Experiments at room temperature (24-26° C.) pH 7.2			
	#229	#226	#227	#228
0	100	100	100	100
1	64	83	75	80
10	32	42	41	36
30	11	14	15	11
60	3	3*	4	3
120	2	4	1*	0.6
180	0.6	4	2	0.2*
240	0.2	3	2	0.4
300	0.3	3	1	0.0
360	0.2	4	1	0.1
1800	0.0	780**	800**	340**

* Lecithin added (100 p.p.m.)
** Estimated

Effective Inhibitors; Bacteriostatic Effects

INHIBITORS effective in varying degrees when tested against some or all of the germicides employed in this study were: lecithin ("Asolectin" or "Yelkin B.T.S.") in "Tween 80," naphuride sodium, "Duponol WA," "Tergitol WA 7," "Triton X-200," "Triton X 300," "Triton X 301," "Triton X 500," concentrated nutrient broth, concentrated tryptone broth, skim milk, "synthetic" hard water, activated carbon, sodium oleate and sodium resinate.

In the experiments reported, it appeared that quite a series of compounds might prove to be satisfactory inhibitors for quaternary ammonium compounds. However, since some of the compounds showed an apparent

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bacteriostatic effect in preliminary tests, more complete experiments were set up in order to obtain a measure of the bacteriostatic properties and possibly determine a compound which would give satisfactory results.

Preliminary Investigations for Bacteriostasis

TABLE 6 reports results of experiments employing five mg. per petri dish of some of the various chemicals under test. This concentration was selected as an upper limit of inhibitor which would ordinarily be required to neutralize quaternaries in swab rinse vials from swabbings of utensils sanitized in approximately 200 p.p.m. of quaternary, assuming a ratio of 20/1 for inhibitor to quaternary. By employing potassium dichromate comparative color standards simulating actual quaternary concentrations, it was indicated that not more than approximately 0.1 mg. of quaternary would remain on an ordinary drinking glass when submerged in a solution of 200 p.p.m. of quaternary and drained for one minute. The amount of quaternary clinging to the glass would appear not to be altered when an additional amount of surface active agent was added. Actual titration of the quaternary indicated that about one third of this amount clings to a glass. A ratio of 20/1 for 0.1 mg. would require 2.0 mg. of inhibitor for each glass swabbed, hence 5.0 mg. was selected in order to maintain a margin of safety in these experiments.

Bacteriotasis (mixed culture)

A MIXED culture was preferred for this experiment, since a compound may exhibit a bacteriostatic effect against one species of microorganism and not against another. In Table 6 it will be noted that all compounds tested except lecithin and naphuride sodium exhibited an apparent bacteriostatic effect against this mixed culture and hence would be unsatisfactory as inhibitors.

Lecithin with Sodium Thiosulphate

IT is of interest to note that in another experiment lecithin which was sterilized in the autoclave in the presence of sodium thiosulfate remained effective as an inhibitor. Chemical tests employing orthotoluidine indicated that the sodium thiosulfate continued to be effective for chlorine neutralization, even though autoclaved with lecithin. These considerations are important in the possible preparation of swab vials prepared with inhibitors both for quaternaries and for chlorine.

TABLE 6

Effect of Inhibitors (5 mg. per petri dish) on Plate Count of Dishwater; Incubation 37° C., 48 Hrs.

Inhibitor added	*Plate count*
Expt. #201:	*X 10³*
Control	3,500
lecithin	4,300
naphuride sodium	3,900
duponol WA	60
tergitol WA 7	170
triton X 200	270
triton X 300	230
triton X 500	220
Expt. #225:	*X 10³*
control	23,000
lec thin	20,000
sodium resinate	4,000
Expt. #236:	*X 10³*
control	120,000
lecithin	140,000
duponol WA	13,000

Effective Ratio

SINCE neither lecithin nor naphuride sodium demonstrated bacteriostatic properties for *Escherichia coli* in previous tests, it appeared these compounds were worthy of further study. Ratios of lecithin to quaternary of 20:1, 30:1 and 40:1 were studied to determine the lowest ratio which would adequately protect this test organism. It appeared that under the conditions of this experimental work, a ratio of about 20:1 for lecithin was adequate. A similar ratio of naphuride sodium to quaternary was also effective under these conditions. However, experiments to be reported in detail elsewhere indicate that higher ratios of lecithin to quaternary are necessary for the protection of some test organisms and for these same organisms the ratio of naphuride sodium to quaternary which will give adequate protection is in question. Muller (9) et al. state that indications are that this compound (naphuride sodium) is not effective for all organisms.

DISCUSSION

CERTAIN salts, particularly of heavy metals, were tested with the possibility in mind that they might inactivate quaternaries. Generally, however, this was not accomplished. Then, too, the germicidal or bacteriostatic effect of some of these compounds was great enough to disqualify them as inhibitors. Compounds such as sodium oleate (6) and skim milk powder left the petri dish opaque and made the counting of colonies difficult. Activated carbon likewise interfered with colony counting. Substances such as concentrated nutrient broth and concentrated tryptone broth had some inhibitory action for the quarternaries but this action was not effective enough. Also, "synthetic" hard water containing calcium, magnesium and iron greatly reduced the germicidal efficiency of quaternaries but, in the concentrations of these minerals used, did not completely inhibit the quaternaries.

The anionic compounds (8) such as "Duponol WA," "Tetrgitol WA 7," some of the "Tritons," etc. were quite effective when employed for arresting germicidal action for low concentrations of quaternaries ordinarily employed for establishing a survival curve. However, when higher concentrations of these anionic compounds were introduced, as would more nearly simulate practical conditions, their bacteriostatic effect was quite pronounced, hence they would appear to have little value as inhibitors. Lecithin in "Tween 80" and naphuride sodium did not demonstrate a bacteriostatic effect in concentrations of five mg. per petri dish, which is somewhat above the concentration level which would ordinarily be required in vials of buffered water used for the swab-rinse technique with food utensils, if a ratio of inhibitor to quaternary of *only* about 20:1 is required. However, indications are that considerably higher ratios will be required for the protection of certain bacteria.

Revival of Test Organism

REVIVAL of test organisms treated with a quaternary am-

(*Turn to Page* 149)

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F. T. C. Holds Conference on Floor Wax Trade Practices

MAJOR opposition to the proposed trade practice rules for the floor wax industry was centered on the suggested definition of the industry's product at the trade practice conference sponsored by the Federal Trade Commission and held at the Hotel Roosevelt, New York, Sept. 9. The definition contained in the tentative draft of the trade rules reads as follows: "Industry Product — Any wax product which is directly or indirectly represented as being suitable for cleaning, polishing, preserving, beautifying or protecting any type of floor surface." Many of those expressing their views on the definition felt that the use of the words "wax product" excluded from the proposed trade practice rules non-wax products used for the same or similar purposes. A broadening of the definition to include all products used for treating floor surfaces for the purposes mentioned in the definition was asked to eliminate the possibility of a competitive advantage going to those products not covered by the rules.

Other speakers suggested the definition of the word "wax"; the setting up of minimum wax content for a product to be called a "wax product"; opposing the idea of setting up minimum wax content standards; recommending broadening the definition to include phrases such as "wax products or those serving the purpose of such" and "or is recommended in place of floor wax." A spokesman for the National Paint, Varnish & Lacquer Association urged that the phrase "wax product" be included in the definition since otherwise paints, varnish and lacquer would be covered by the rules. Others opposed the whole idea of rules for the floor wax industry on the ground that there are not a sufficiently large number of unfair practices to warrant setting up such rules.

The F.T.C. representative who was chairman of the meeting, R. J. Beller, pointed out that the Commission has been investigating the industry and has three or four cases pending against concerns in the floor wax industry.

The conference, which was opened by Paul Cameron, chairman of the rule making section of the Federal Trade Commission, was attended by over 80 persons. Following introductory remarks, in which Mr. Cameron explained how trade practice rules are worked out, Melvin Fuld of Fuld Brothers, Inc., Baltimore, made a preliminary statement on the proposed trade practice rules in which he outlined previous meetings of industry representatives with the Commission for the purpose of developing a tentative set of rules. Industry representatives had approved rules one to 10, but had not previously agreed on a definition for the industry's product. Rules 11 through 15 had not been considered at F.T.C.-industry meetings. The latter five cover price discrimination, outlawed by the Robinson-Patman Act; misrepresentation as to character of business; fictitious prices; false invoicing and commercial bribery.

The rules were then read and discussed. Rules 1 through 3 were not commented upon. They cover misrepresentation; imitation of trade marks, trade names, etc., and defamation of competitors or disparagement of their products. Rule 4, "Misuse of 'Slip Proof,' 'Non Skid,'" etc. evoked some discussion. One comment was that the rule was too strict since conceivably a product might be made at some future time that would be "non-slip" for some but not all types of surfaces. The phrase "non slip" was discussed, particularly with reference to seals of approval issued by the Underwriters' Laboratories. It was pointed out that the Underwriters' Laboratories use the phrase "anti-slip," not "non slip."

Rule 5, covering such terms as "slip resistant," "anti-slip," etc., evoked considerable discussion as to methods of measuring slip. Paragraph A of the rule, covering "tests or methods generally used in the industry," was the object of many comments. The feeling was that there is no standard accurate method for accepted use in slip testing. The Ziegler method was stated by one industry spokesman to be satisfactory, while another disagreed. The fact that there is no one standard test used by the floor wax industry was acknowledged by another industry representative, who apologized for the fact and explained that during and since the war little had been accomplished in the way of research. Another speaker asked that the Commission take into consideration the fact that the industry has no standard method of measuring slip.

At this point, John Conner, counsel for the National Association of Insecticide & Disinfectant Manufacturers, asked that an alternate set of rules proposed by some firms in the industry be considered by the F.T.C. The alternate rules were then considered at the same time as the ones distributed by the F.T.C.

Rule 7, which covers misuse of the terms "water resistant," "water repellent," etc., evoked some discussion. One representative of the industry stated a preference for the alternate recommendation submitted by the N.A.I.D.M. counsel. The alternate rule (2) reads as follows:

Rule 2. Misrepresentation by relative expression:

A. "Water resistant" or "Will withstand damp mopping" — Unless such surface will not be substantially removed, dissolved, penetrated, or discolored by water at room temperature, applied or coming in contact therewith, under ordinary conditions of use, or damp mopping; provided, however, that if wiping or buffing will restore the approximate color and gloss which existed before the water contact, then the use of such terms will not be considered an unfair practice.

Following the reading of rule 8 ("misrepresenting products as conforming to standard") a suggestion

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Of related interest, is a paraffin solution described (23) as a satisfactory treatment for filling and rendering impermeable floors made of concrete, terrazzo or marble. This consists of:

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New Type Sealers

DURING recent years a new type of stain - sealer has been made available to replace paints and enamels for concrete floors. Heavy traffic on painted floors calls for frequent repainting. The patching of worn areas with more paint is an unsatisfactory procedure from the standpoint of appearance. One of the materials designed to obviate this condition is said (19) to consist of a thin floor varnish of low viscosity in which a small amount of colored pigment is ground. An oil-soluble dye of the same color as the pigment, dissolved in high-flash naphtha, is added to the varnish-pigment mixture and the entire mass is mixed to a uniform color. Sometimes waxes are also dissolved in the vehicle. The finished product, applied with a short, stiff bristle brush, using a scrubbing motion, penetrates into the concrete to some extent. The floor is maintained with a colored wax. Worn areas are rewaxed and buffed so that patching is no problem. While such a product does not give the effect of a well-painted floor, it does offer a quick and economical method for decorating and maintaining a concrete floor.

A product of this general class has also been described in Bennett's text. (5) The colored primer-sealer is prepared as follows::

Loba C resin (Manila)	100 lb.
Alcohol	27 gal.
Toluol	13½ gal.
Ethyl acetate	4½ gal.

Mix together in a closed tank. Add colors as desired, e. g. iron oxides for red and browns and chrome oxide for green. Approximately one pound of color per gallon of the primer-sealer is sufficient. If a standard gray color is desired, the following combination may be added to the above vehicle:

Titanium oxide	25 lb.
Lithopone	25 lb.
Black iron oxide	5 lb.

The coloring agents must be ground into the vehicle on a colloid mill or in a closed ball or pebble mill because of the rapid drying of the vehicle. This colored primer-sealer is applied to a new concrete floor. It dries in about half an hour. After drying, the floor is coated with a waterproof type water-wax into which there has been incorporated the same color as the base coat. The requisite wax finish is prepared by adding about one pound of color to each gallon of any standard type water-wax; and running the mixture through a colloid mill. Floors treated with combination are maintained by mopping worn or scuffed areas with the colored wax finish.

In addition to the preparations already discussed, there are various specialized products to seal and protect terrazzo, unglazed tile and other stone-like floorings. The formulation of these specialized items calls for exacting knowledge, not only of the flooring materials, but also of the effects of various agents on them.

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I. J. Marcuse Dies at 80

Isaac J. Marcuse, 80, of Richmond Va., a director of West Disinfecting Co., Long Island City, N. Y., the father of John A. Marcuse, vice-president and a brother of M. M. Marcuse, of West Disinfecting Co., died of a heart attack Aug. 22 in his summer home at Wake, Va. A native of Richmond, and a former president of the Richmond Chamber of Commerce, he was long active in the paper manufacturing industry.

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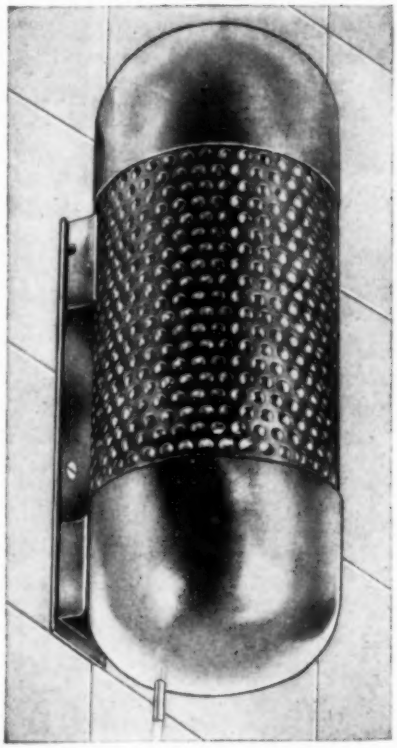
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ROSIN IN SOAP

(*From Page* 47)

Rosin has been used perhaps for centuries in small amount for a great number of things. Among these may be mentioned disinfectants, sealing wax, a variety of ointments, for rubbing on violin bows, papier-mache. Presently, 11 percent goes to soap, the paint and varnish industry consumes about 30 percent and the paper industry nearly 25 percent.

Rosin has been an important ingredient of soap for a long time. This is especially true for such countries as Germany and England where the soap industry was based upon tallow as the most available material. This situation is in contrast to that of the Mediterranean Basin where olive oil and seed oil combinations made rosin unnecessary.

Domestically, the development of gas and electricity for illumination released tallow previously consumed in candles for soap making. Simultaneously, various types of palm oils were made available. Fats yielding hard soaps at a low price were then offered the soap maker after 1880 and the problem of softening the product appeared. Rosin was the immediate and satisfactory answer. By 1909, over 200 thousand drums of rosin were so used as compared with the 144 thousand reported for the past crop year.

FLOOR WAX CONFERENCE

(*From Page* 145)

was made that the phrase "wax polish" in this and other rules be changed to "industry product."

Rule 9, which covers "misuse of terms denoting unique efficacy or durability," was read without comment.

Further clarification of the two grades of wax products referred to as "heavy duty" and "traffic" waxes in rule 10 was requested for manufacturers of two types of waxes.

Rule 11, which covers "discriminatory prices or rebates, refunds, discounts, credits, etc., and is based on one section of the Robinson-Patman Act, caused two of the representatives present to state that unless rule 11 were changed they would feel compelled to advise the companies they represent not to sign the trade practice rules. Their feeling was that either the Robinson - Patman Act should merely be mentioned by name or included in its entirety. It was further suggested that the full text of the Clayton Act and the Fair Trade Act should be included.

A question was raised regarding rule 12, which covers "misrepresentation as to character of business." The question dealt with the case of a person or firm developing a formula which is produced commercially by another concern. The questioner wanted to know if the company or person developing the formula could put his name on the product. Rule 12 states that: "It is an unfair trade practice for any concern . . . to represent, directly or indirectly, that it owns or controls the factory engaged in the manufacture of such products, when such is not the fact; or in any other manner to misrepresent the character, extent or type of its business."

The final three rules, 13, 14 and 15, involving, respectively, "fictitious prices," "false invoicing," and "commercial bribery" were not commented upon.

On the basis of the New York hearing, the F.T.C. will study the rules and recommendations and issue a draft of proposed rules. After a public hearing on them the Commission will issue a set of trade practice rules in final form for the industry.

MAINLINERS

(*From Page* 41)

however, particularly those of the midwest or east; a tremendous amount of dirt and soot gathers on the exteriors, and the longer a plane lays over at airports in these cities, the more dirt is accumulated.

Coincident with the cleaning job as outlined, the plane's engines are also getting a cleanup, preparatory to the intensive mechanical overhauling they are given periodically. As each of the four engines is disengaged from the plane at the dock it is wheeled into a shop for a quick steaming. Then, piece by piece, the complicated mechanism is literally unwound. Large parts are suspended directly from a 1,280 foot long, overhead, endless chain conveyor. Other engine parts are put into metal baskets where the position of even the smallest part is determined from wall charts that guide the workers.

A switch starts the motor which drives this loaded conveyor at speeds varying from nine to 27 inches per minute and the long line of engine parts heads for a washing tank, 160 feet long and shaped like a hairpin. The tank is filled with 30,000 gallons of different cleansing solutions, including water, petroleum solvents and various chemical compounds, each of which acts on the parts in stages along the route. Distributed throughout the tank's length are seven washers, each powered by a 20 h. p. electric motor, which churns the solutions and pumps high pressure steam at the engine parts. Baths last for about five hours. Parts then begin to emerge from this cleaning process looking like new. A mechanical checkup follows washing.

At its San Francisco maintenance base United Air Lies has introduced a new era of efficiency in aircraft overhauling, an efficiency which is reflected in flight performance.

QUATERNARIES

(*From Page* 143)

monium germicide was reported by Valko and DuBois (10) to be accomplished by detoxication with one to one and one-half equivalents of a surface-active anion when the time of exposure to the antibacterial agent does not reach a certain limit. Klein and Kardon (8), carrying out similar experiments, report that "in no case was any evidence of reversal obtained in the germicidal range of the cationic detergents." In our studies attempts were made to "revive" test organisms after they were apparently killed. Different inhibitors of varying concentrations were added after stipulated time intervals beyond the point of apparent complete sterilization. All attempts for revival were unsuccessful.

Sequence of Addition

ADDITION of inhibitor before or simultaneously with the germicidal detergent was stated by Baker

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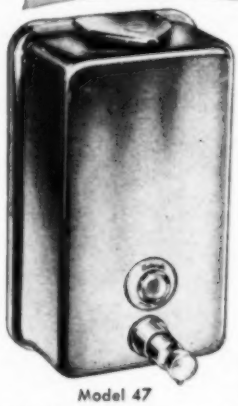
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(1) et al to be essential in order to be effective. DuBois and Dibblee (11) investigated the action of a quaternary ammonium germicide on a test organism which had previously been treated with a soap or anionic detergent and concluded that although prior treatment of the bacteria with anionic compounds delays the action of cationic germicides, it does not prevent it. However, in our experiments it has been possible to inhibit further germicidal action after the test organism had been exposed to the germicide for as long as three hours. Longer periods were not attempted. We have found that if sufficient inhibitor is added, germicidal action for *Escherichia coli* is arrested, whereas if insufficient inhibitor is added, killing continues slowly.

CONCLUSIONS

A LARGE number of compounds tested appear to be satisfactory as inhibitors for the germicidal action of quaternary ammonium salts against *Escherichia coli*, but most of these compounds cannot be employed because of their bacteriostatic properties in possible use dilutions. This is particularly true of such compounds as "Duponol WA," "Tergitol WA 7" and some of the "Tritons." Still other compounds such as sodium oleate and activated carbon demonstrated some inhibitory powers, but were unsatisfactory, the former causing the agar to be opaque, and also was somewhat bacteriostatic, while the latter left pieces of activated carbon in the agar, which made colony counting difficult. Concentrated nutrient broth and concentrated tryptone broth demonstrated inhibition against the germicidal action of quaternary ammonium compounds, but would be impractical for use of the high concentration required.

Where *Escherichia coli* alone was used as a test organism, lecithin ("Asolectin" or "Yelkin B.T.S.") in "Tween 80" and naphuride sodium both demonstrated inhibitory properties for quaternary ammonium compounds in a ratio of inhibitor to quaternary of approximately 20:1. These compounds appeared to be more satisfactory than other compounds tested, and were not bacteriostatic in use-dilution ranges. However, experiments to be reported later indicate that a ratio of 20:1 of inhibitor to quaternary will not protect certain types of microorganisms.

SUMMARY

CERTAIN compounds inhibited the germicidal action of quaternary ammonium compounds against *Escherichia coli* after this test organism had been exposed to the germicide for varying periods of time up to at least three hours at room temperature, which was the maximum period studied. Many of the compounds studied had bacteriostatic or other undesirable properties which would disqualify them for use as inhibitors for the germicidal action of quaternary ammonium compounds in the concentrations required under practical use conditions. Lecithin demonstrated a stimulating action on the growth of *Escherichia coli* after a lag period of not less than about four hours at room temperature, but at refrigeration temperature (about 5°C.), there was no increase in the number of bacteria after 24 hours. In a ratio of twenty parts lecithin to one part quaternary, lecithin in "Tween 80" demonstrated satisfactory quaternary inhibitory properties when employing *Escherichia coli* as a test organism. Twenty parts naphuride sodium to one part quaternary was likewise effective in protecting *Escherichia coli*. While these inhibitors were effective when employing *Escherichia coli*, indications are that for certain other test organisms they are either ineffective or less effective, and higher ratios of inhibitor to quaternary will be required.

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SPRAYERS

(*From Page* 124)

ing; a solid stream is produced for long range larvacide spraying; the cone nozzle is utilized for residual or straight-line larvacide spraying; the flat spray nozzle comes as standard equipment and is used for space spraying or larvacide spraying. The Lofstrand sprayer operates up to 60 lbs. pressure and the spray is released by squeezing the hose rather than a trigger. Nozzle drip is eliminated by a special valve, the strainers are readily accessible for cleaning. Washers, etc. are eliminated, and all joints are seam-welded to prevent leaks. Other manufacturers also make comparable knapsack-type sprayers.

(*To Be Continued*)

SOAP PLANT OBSERVER

(*From Page* 45)

fonation from E. I. duPont de Nemour's and Hardesty Chem Co. The latter product is trade named "Harchemex." Several other alcohols suitable for ethylene oxide condensation to non-ionic detergents should also be noted; namely, the di, secondary and tertiaryamyl phenols of Sharples Chem. Co. and Koppers Co. and the hydroabietyl alcohol of Hercules Powder Co. The utility of these materials to the smaller soap makers will become apparent in time.

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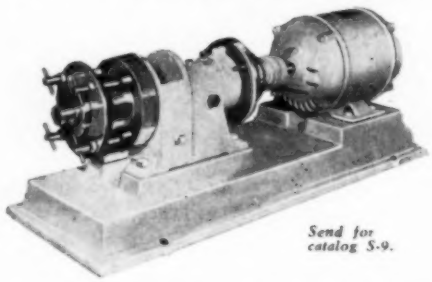
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TECHNICAL *Briefs*

From Current Literature in the Sanitary Products Field

CO_2 as a Propellent

Carbon dioxide is a satisfactory propellent for insecticide solutions containing DDT. It is used to increase the pressure of the solution and thus make them effective for greater distances, and to decrease the cost of the solution by reducing the "Freon" content. Preliminary field tests indicate that solutions propelled with carbon dioxide are more efficient than those depending entirely on "Freon-12" or on methyl chloride. R. A. Fulton, U.S. Dept. Agr., Agr. Research Admin., Bur. Entomol. Plant Quarantine E-739, 3 pp. (1948).

Glycols as Germicides

The phenol coefficiens of several esters of benzoic and salicylic acids and of glycol compounds with various benzoate-and salicylate-substituted groups show that of the four glycols studied, only propylene glycol exhibited germicidal activity towards S. *aureus*. Ethylene, diethylene, and propylene glycols showed slight activity against *E. typhi*. Of the benzoic acids, *ortho*-and *meta*-hydroxy benzoic acids were the only compounds which showed germicidal activity against S. *aureus*.

Generally large concentrations of glycols were required to inhibit gas production by *E. coli* and *A. aerogenes*. The methyl, ethyl, propyl, and butyl esters of benzoic acids were better inhibitors than the glycol esters. Methyl and ethyl benzoate and salicylate were good inhibitors. The effect of the glycol esters was greater against *Saccharomyces cerevisiae* than against *E. coli* or *A. aerogenes*. H. C. Heim and C. F. Poe, *Food Technol.* 2, 23-32 (1948).

Chlorine Disinfectants

Trichloroethylene, by itself or mixed with 10 per cent of paradichlorobenzene or four per cent of DDT, is used as a liquid disinfectant. Ethylene tetrachloride by itself or mixed with 20 per cent of ethylene dichloride or trichloride, is suited for gaseous disinfestation. Ethylene trichloride is effective against pediculi, applied by rubbing or immersion, also by exposure to the vapors. Addition of four per cent of DDT is useful against body lice. It is also effective against bedbugs if present in small rooms. Larger rooms or buildings are treated by evaporation of 80 per cent ethylene tetrachloride and 20 per cent trichloroethylene. The latter compound is also effective against mites and ticks when applied by brushing on, against cockroaches by injecting into the nests, against moths with an admixture of ethylene dichloride, against book lice, wood worms, wasps, and ants.

Ethylene tetrachloride is active against *Calandra granaria* and plant lice. Evaporated at a rate of 30 ml. per cubic meter, it is useful to exterminate rats. The absence of danger in the use of these compounds is a great advantage. G. Penso. Rend. ist. super. sanita 10, 606-32; through *Chem. Abs.*

Household Insect Fumigants

Halogen-substituted acrylonitriles are effective noninflammable fumigants for certain grain-infesting and household insects, such as the *alpha, beta*- dichloro compound. They may be used by vaporizing or atomizing the liquids, or by incorporation into solids. H. S. Davis to Am. Cyanamid Co. U.S. Patent No. 2, 433, 742.

Mildewproofing Leather

Developed during the war by the National Bureau of Standards, a dressing serves as a fungicide for the treatment of leather goods. Important ingredients are 20 per cent of a mixture of equal parts of neatsfoot oil and mineral oil for conferring flexibility, and two per cent of para-nitrophenol as fungicide. The other components are 10 per cent of cyclohexanone as solvent, plus 68 per cent of either perchloroethylene or Stoddard's solvent. Perchloroethylene is preferable because it is nonflammable. The compound should be applied so that the amount of active ingredient—the nitrophenol—is not greater than 0.35 per cent of the weight of the leather. It should not be used on articles that make intimate contact with the skin, such as hat bands and gloves.

The greatest use during the war was for treatment of shoes worn by troops in the South Pacific areas. It is now being used for treatment of shoes and other leather items which are placed in storage, as well as for reconditioning combat boots that have become mildewed and stiffened. *Chem. Engineering* 55, No. 5, 174-6 (1948).

Copper 8-Quinolinolate

Manufacture and use of copper 8-quinolinolate as an industrial fungicide and preservative in fabrics is a new development arising from wartime needs. Patch tests on humans showed that the compound is not a primary skin irritant nor a skin sensitizer. The compound has a high toxicity to several types of fungi; its effectiveness against common molds is comparable with that of well known powerful fungicides such as pentachlorophenol, its copper salt, and pyridyl mercuric acetate. When applied to fabric in the presence of suitable bonding agents and water repellents, the compound possesses an unusually high degree of permanence in the fabric. Besides its use on cotton and wool fabrics, the fungistat is valuable as a preservative for leather, wood, plastics, and many types of protective coatings. P. G. Benignus, *Ind. Eng. Chem.* 40, 1426-9 (1948).

Testing Insecticides

The substance to be tested, dissolved in 0.001-0.002 ml of alcohol, is dropped onto adult anesthetized flies and toxic manifestations are noted. Results of experiments carried out on the different developmental stages of the flies make it probable that DDT and hexachlorocyclohexane do not penetrate the thick chitin plates but gain access to the flies by way of the sense organs, joint clefts, and stigmata. P. N. Witt, U. *Naturforsch*, 2b, 361-61.

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TRADE NEWS . . .

Gresham Joins Fla. Firm

William B. Gresham, Jr., formerly entomologist and structural pest control inspector for the Florida State Board of Health recently joined Young-Jones Laboratory, Inc., Tampa, Fla. He succeeds Lawson B. Jones as a director and secretary-treasurer of the firm. Mr. Jones left the firm to take a position with the Treasury Department. Mr. Gresham, who holds a bachelor's degree from Harvard and a master's degree in entomology from the University of Florida, was the first inspector employed by the State Board of Health under the Florida Structural Pest Control Act of 1947. Young-Jones manufactures "8-Ball" insecticides.

H. A. Ferris of West Dies

Henry A. Ferris, 73, a salesman for 40 years for West Disinfecting Co., Long Island City, until he was pensioned two years ago, died Aug. 19 in an ambulance en route from Ebbets Field to Kings County Hospital. He had suffered a heart attack at the baseball park. Mr. Ferris, who lived at the central branch of the Y.M.C.A., 55 Hanson Place, Brooklyn, was an ardent fan of the Brooklyn "Dodgers" baseball team and an organizer of one of the old rooter clubs for the team. He was visiting friends at the field when stricken. Mr. Ferris was a member of the Elks. He is survived by a daughter, a brother and two sisters.

"Airwick" Plant in Chi.

Federal Packaging Co., New York, has established a branch plant in Chicago for manufacture and distribution of their household deodorizer, "Airwick," Located at 8932-48 S. State Street, the building has 24,000 square feet of operating space.

Heckathorn Has Own Firm

The establishment of a new firm, Heckathorn & Co., Ltd., in Richmond, Calif., specializing in custom grinding and the manufacture of insecticides, was announced recently by Eugene S. Heckathorn. He



EUGENE S. HECKATHORN

was formerly manager of the west Coast plant of R. J. Prentiss & Co., New York, for which the new company will act as agents. Heckathorn & Co. is located at Fourth St. and Cutting Blvd., Richmond.

Snell Leaves Hudson

V. A. Snell, secretary and general manager of Lowell Manufacturing Co. and H. D. Hudson Manufacturing Co., Chicago, resigned recently. His future plans are unannounced as yet.

Chemical Firms Organize

Formation of a permanent voluntary organization for mutual cooperation and for the furtherance of their interests in the various sections represented was announced by executives of Benlo Chemicals, Milwaukee,, Eastern Chemicals, Inc. Albany, N. Y., and Southern States Chemical Co., Atlanta., following a recent meeting at Sunrise Lodge, Land-O-Lakes, Wis. The three organizations, whose operations within their respective areas cover a total of 19 states, were holding their second annual meeting since their formation. The companies came into being in 1944 when they took over and marketed a certain portion of the chemical products formery distributed through the industrial chemical division of Hercules Powder Co., Wilmington, Del. Attending the recent meeting were: L. B. Greiner, D. L. Hurley and B. M. Slicting of Benlo Chemicals; H. C. Dorr and J. R. Nolan of Eastern Chemicals, Inc., and J. R. Porter and H. Thompson of Southern States Chemical Co.

Renames Synergist

A change in the name of their pyrethrum and rotenone synergist from "Octacide 264" to "Van Dyk 264" and the issuance of a descriptive booklet on the newly renamed product was announced last month by Van Dyk & Co., Belleville, N. J.

Aerosol Bomb Suit

Explosion of an aerosol bomb caused personal injury to three persons and property damage amounting to $21,000, it is alleged in a suit to recover this sum, filed recently in a Chicago court. Defendants in the case are Standard Oil Co. of Indiana, and the Buena Drug Store, Chicago, where the bomb was purchased. Leonard Hill, the plaintiff, his wife and their 10-months-old daughter were injured in the blast, the bill claims.

T. J. Rogers Dies

Thomas J. Rogers, secretary-treasurer of Rogers Janitor and Laundry Supply Co., Miami, Fla., died on Aug. 1. The firm was started in February of this year by Mr. Rogers and his brother, Earl G., who was formerly with the Industrial Sales Department of Colgate-Palmolive-Peet Co., Jersey City, N. J. Previously, Thomas J. Rogers had been connected with the Hotel Sherman, Chicago, for over 25 years.

New Pest Control Firm

The opening of a new pest control firm, "Roy Stubblefield's Insect Control" at Pineville, La., was announced during August. The firm will specialize in the control of household insects and termites. Roy Stubblefield, the owner, was formerly with C. R. Blair Laboratory.

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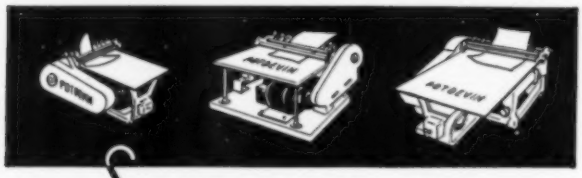
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Cole Acquires New Plant

Purchase of the factory building and property located at 42-25 Ninth St., Long Island City, N. Y., was announced recently by David D. Catts, president of Cole Laboratories, Inc., and Retort Pharmaceutical Co. The plant, which was acquired from the Defense Plant Corporation, was used during the war for the production of electro-chemicals. The new facilities will be used to expand the manufacturing and compounding of laboratory, reagent, commercial and industrial chemicals by Cole Laboratories and to increase production of drugs, chemicals and pharmaceuticals made by Retort Pharmaceutical Co.



Newly acquired plant above, located at 42-25 Ninth St.., Long Island City, N. Y., will be used by Cole Laboratories, Inc., and Retort Pharmaceutical Co., it was announced recently by David D. Catts, president, in inset. The plant was purchased from the Defense Plant Corp. and was used during the war for the production of electro-chemicals.

Ask Govt. Rat Control Aid

A recommendation that the Federal Government spend $3,000,000 to aid in rat control efforts was contained in the final report of the national committee for rat control presented to the Secretary of the Interior by committee chairman, Hamilton M. Warren, vice-president of National Carbon Co., New York. Such a program of Federal aid was included in a bill introduced in the Eightieth Congress by Representative Raymond H. Burke, Republican of Ohio. The bill was not acted upon in the 1948 session of Congress, but is expected to be reintroduced next year. The plan calls for the Government to add two additional dollars to each dollar provided by the state to combat rats. Stronger rat control ordinances with "severe penalties" for violations were urged in the report.

Chlordane vs Grasshoppers

The effective control of grasshoppers through the use of chlordane during the recent infestation of the wheat fields of Saskatchewan, Canada, was told recently by Arthur Wetter of E. Ross Humphrey & Associates, Chicago, who made the trip to Saskatchewan at the request of Velsicol Corp., Chicago, to get an eye-witness account of the devastation and the work of chlordane in controlling the grasshopper plague. Although considerable damage had been done to the wheat fields in a matter of a few hours, by flying a plane load of chlordane to the scene and applying it some sections were reported undamaged. Chlordane's success in controlling the infestation was outlined by Mr. Wetter on his return to Chicago with facts and photographs of the infested area.

Winter Joins Powell

Charles R. Winter, formerly with the Naugatuck Chemical Division of U. S. Rubber Co., New York, recently joined the sales department of John Powell & Co., New York. Mr. Winter represented Naugatuck in the Great Lakes area.

NAIDM Committee Changes

Two committee appointments were made last week by Gordon M. Baird of Baird & McGuire Inc., Holbrook, Mass., president of the National Association of Insecticide and Disinfectant Manufacturers. Dr. Carl A. Lawrence of Winthrop Chemical Co., Rensselaer, N. Y., has been named general chairman of the disinfectant scientific committee, succeeding Dr. George F. Reddish, Lambert Pharmacal Co., St. Louis, who was forced to resign because of press of work.

At the same time, Mr. Baird announced that Frank J. Pollnow, Jr., of Vestal, Inc., St. Louis, has been named chairman of the exhibit committee. The N.A.I.D.M. exhibit will be shown at four meetings during 1948: American Hospital Association, Atlantic City, N. J., Sept. 20-23; National Safety Council, Chicago, Oct. 18-22 National Government Purchasing Agents, Philadelphia, Oct. 18-20 and American Public Health Association at Boston, Mass., Nov. 8-12.

Hudson Names Miller

Hudson Equipment Co., Chicago, recently announced the appointment of A. E. Miller as manager of the company's Columbus, O., branch. Mr. Miller has been associated with the firm for many years.

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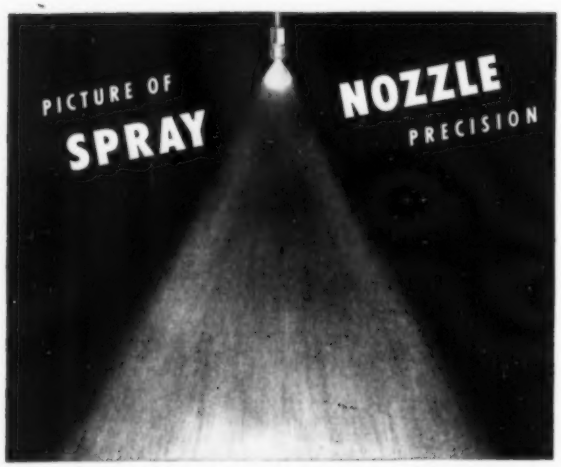
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PEA Discusses Moths

Dr. John B. Schmitt, associate professor of entomology, Rutgers University, New Brunswick, N. J., presided over a symposium dealing with "Clothes Moths," held under the sponsorship of the Professional Exterminators Assn. at the Hotel McAlpin, New York, Aug. 9. F. S. Kirkpatrick of Residex Corp., Newark, N. J., exclusive distributor to the pest control industry for the new mothproofing compound manufactured by Bocon Chemical Corp., New York, spoke on the new "Bocon" process for mothproofing. An attendance of 51 was reported.

William O. Buettner, secretary of the National Pest Control Association, also spoke. He discussed further uses for rodenticide "1080" and the concern the industry is showing in fly control.

Mich Chem. Appoints

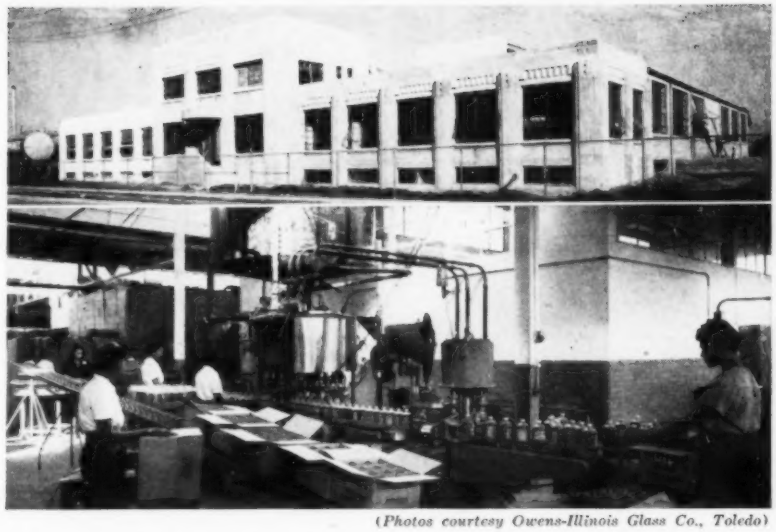
The appointment of Earl L. Reichard as eastern manager of chemical sales for Michigan Chemical Corp., St. Louis, was announced late in August. In addition, he will continue in his former post as head of the export sales division, making his headquarters at 230 Park Ave. He succeeds William F. Groen, who resigned.

Hyman Chlordane Bulletin

A four page, two-color folder, "Eradication of Livestock Parasites, Ticks, Lice, Mange Mites, Fleas and Flies with Chlordane" was announced recently as technical supplement 203-B by Julius Hyman & Co., Denver. Sections in the new bulletin deal with available formulations, applications and recommended dosage, report of field safety tests and, chlordane for household and agricultural insect control. A dilution table is also contained in the bulletin.

Bocon History Told

The early history, current success and a thumbnail sketch of the founder of Bocon Chemical Corp., New York, and its "Boconize" mothproofing process, are discussed in July issue of *The Reader's Digest* and the July 9, issue of *Tide* magazine. Bocon, founded by Ernest Conway and William Bordner, market "Boconize" for industrial use and "Boco" for retail sales through Perkins Soap Co., Springfield, Mass., and Rohm & Haas Co., Philadelphia. Bex Detergent Co., South Orange, N. J., is the licensed manufacturer of the product.



(Photos courtesy Owens-Illinois Glass Co., Toledo)

Large, modern building above was recently completed by E. L. Bruce Co., Memphis, to house its household products division. The light airy structure incorporates some of the latest ideas in factory design. Below, one of the plant's bottling lines in operation putting up "Bruce Floor Cleaner." The plant also turns out floor finishes, cleaners and waxes.

Folder on "Lanelle"

Sanitary Soap Co., Paterson, N. J., recently issued a four-page, two-color folder on its recently announced antiseptic "Lanelle" powdered hand soap, formerly known as "Velvo." The new soap, which is said to contain refined U.S.P. lanolin, is claimed to prevent dermatitis infection because of its germicidal properties. At the same time it is said to be capable of removing all stubborn dirt without harsh rubbing. "Lanelle" is recommended for both industrial and office uses and comes in eight-ounce packages, five-pound self dispensing cartons (six per case), 50 and 100 pound kegs and 250 pound barrels.

New Champion Duster

A new double-action duster for use on ground crops, grape vines, berry bushes and fruit trees was announced recently by Champion Sprayer Co., Detroit. The new duster can be carried knapsack fashion and operated by means of a lever. The lever action is said to grind and mix the powder within the lead coated steel tank. The new duster weighs 14 pounds empty and hold 15 pounds of powder. The flow of dust may be regulated quickly and the entire top is removable for easy filling.

Pennsalt Ups DDT Price

Price increases of 2½ cents per pound on 50 percent DDT wettable powders and 50 percent DDT dust concentrate were announced during August by Pennsylvania Salt Manufacturing Co., Philadelphia.

Hyman Perfects Appeal

Julius Hyman & Co., Denver, recently announced that subsequent to the injunction order issued against its president, Dr. Julius Hyman, defendant in a suit brought by Velsicol Corp., Chicago, it has perfected an appeal to the Appelate Court to stay the execution of the lower court's order. Pending an appeal of this decision, the Hyman company is continuing to operate.

Beauty, Barber Meeting

The 44th annual convention of the Beauty and Barber Supply Institute was held Sept. 14-17 at Asbury Park, N. J.

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A.P.H.A. Meets in Boston

The 76th annual meeting of the American Public Health Association will be held at the Mechanics' Building, Boston, Nov. 8-11. The list of exhibitors includes Armour & Co., Chicago; Bristol-Myers Co., New York; Economics Laboratory, Inc., St. Paul, Minn.; the National Association of Insecticide & Disinfectant Manufacturers, Inc., New York; Procter & Gamble Co., Cincinnati; Wyandotte Chemicals Corp., Wyandotte, Mich.

AAAS Hears Klarmann

Dr. E. G. Klarmann of Lehn & Fink Products Co., Bloomfield, N.J., will give a paper, "Recent Trends in Disinfectants, Antiseptics and Fungicides," before the Gordon Research Conference of the American Association for the Advancement of Science at New London, N. H., Oct. 23.

Elmira Firm Incorporates

Paul Stone Supply Co., Elmira, N. Y., recently incorporated under the name of Sone-Walzer Inc., and Charles Walzer has become a member of the firm.

Bulletins on Quaternaries

Three technical bulletins (280, 281 and 282) on quaternary ammonium compounds were issued recently by the New York State Agricultural Experiment Station, Cornell University, Geneva, N. Y.

DCAT Meetings at Shawnee

The 58th annual meeting of the Drug, Chemical and Allied Trades Section of the New York Board of Trade, will be held at Shawnee Inn, Shawnee-on-Delaware, Pa., September 24-25. Robert B. Magnus, Magnus, Mabee & Reynard, Inc., is general chairman for the affair, with Harold C. Green, L. Sonneborn Sons, Inc., heading the golf committee.

Show DDT Resistant Flies

Further evidence that houseflies are becoming resistant to DDT was presented during August at the annual open house of the New Jersey Agricultural Experiment Station at Rutgers University, New Brunswick, N. J. Drs. John B. Schmitt and George W. Barber, both of Rutgers, told of DDT-resistant flies that they had tested in their laboratory.

New Wax Remover

A wax remover that penetrates and loosens old floor waxes, oils, and polishes so that they may be easily removed by rinsing, is announced by Vestal, Inc., St. Louis, Mo. It also leave a slight protective film that permits the floor surface to be immediately rewaxed. The product is 95 per cent active and is based on a cationic type of detergent, with addition of a small concentration of solvent which is selective toward waxes.

Garthe Heads USPH Unit

Edmund C. Garthe, a sanitary engineer, has been appointed head of the Land and Air Carrier Section of the Sanitary Engineering Division of the Public Health Service, it was announced during August by Surgeon General Leonard A. Scheele. Mr. Garthe succeeds H. Norman Old, who has been assigned to the Bureau of Medical Services. Mr. Garthe has been with the Public Health Service since 1936, when he was appointed Junior Sanitary Engineer and assigned to the New York district office.

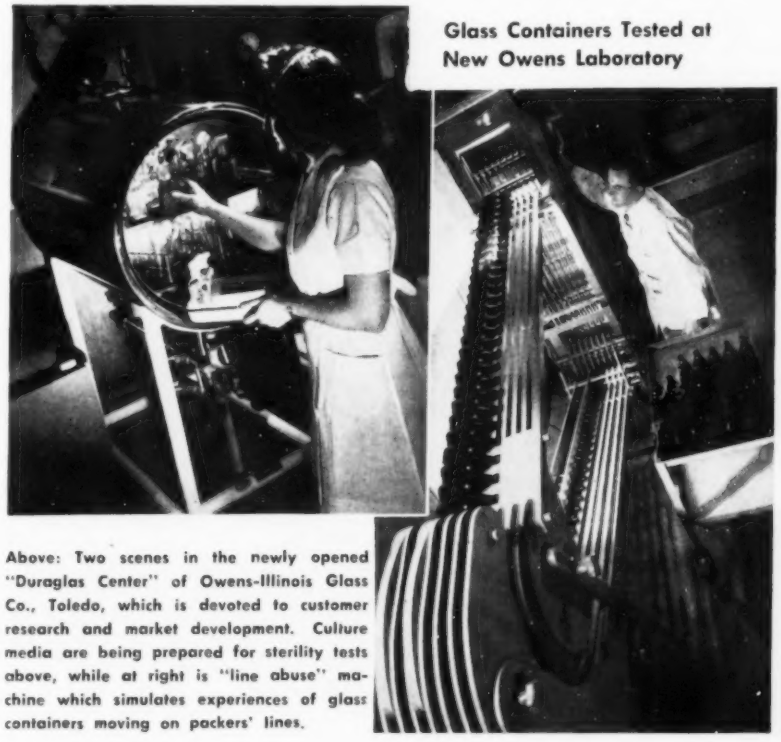
Fly "Insect-o-Lites" to D. C.

Insect-O-Lite Distributors, Inc. of Washington, D. C., profited considerably from the good-natured publicity attendant on the arrival in the nation's capital of a 25,000-pound airplane load of their new "Insect-O-Lite" insecticidal lamp attachments, just prior to the opening of the special session of Congress recently. Full page advertisements in Washington newspapers announced the availability of the product "if you come early." Following the earlier introduction of the insecticidal lamps to the capital, demand became so great that company officials had to start flying supplies from Burbank, Calif., where "Insect-O-Lite" is made by Avilite, Inc. Two weeks' time had been required for shipments from the West Coast by rail, but this time was cut to less than 24 hours shipping by air.

Sonneborn Exhibit

Two new tests, claimed to be of importance to users of U.S.P. petrolatum and microcrystalline wax will be featured Oct. 12-16 by the white oil and petrolatum division of L. Sonneborn Sons, Inc., New York, at its exhibit at the Exposition of Chemical Industries in Chicago.

Glass Containers Tested at New Owens Laboratory



Above: Two scenes in the newly opened "Duraglas Center" of Owens-Illinois Glass Co., Toledo, which is devoted to customer research and market development. Culture media are being prepared for sterility tests above, while at right is "line abuse" machine which simulates experiences of glass containers moving on packers' lines.



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NAIDM Convention

Serving on the program committee for the 35th annual meeting of the National Association of Insecticide and Disinfectant Manufacturers, to be held at the Hotel New Yorker, Dec. 6 and 7, are the following men, according to a recent announcement of the NAIDM: T. Carter Parkinson of McCormick Co., Baltimore, chairman; James E. Ferris, Niagara Alkali Co.; Melvin Goldberg, Geigy Co.; John Powell, John Powell & Co., all of New York and John Marcuse, West Disinfecting Co., Long Island City, N. Y. Ira P. MacNair, MacNair-Dorland Co., is in charge of arrangements and John H. Calo of John H. Calo Co., and L. J. LaCava of Continental Can Co., New York, will handle the entertainment.

N. Y. N.S.S.A. Meeting

A two-day meeting of the eastern region of the National Sanitary Supply Association will be held Dec. 9 and 10 at the Park Central Hotel, New York, site of last year's meeting. Lee Fried of Enterprise Paper Corp., New York, has been appointed program chairman. He will be assisted by Jack Gantz, of Empire Brush Works, Portchester, N. Y. N.S.S.A. eastern regional vice-president, Martin Peters of Moore Brothers Co., New York, N.S.S.A. secretary and Jack Kahn of Windsor Wax Co., Hoboken, N. J.

At the same time it was announced that the eastern regional group would begin to hold monthly meetings in New York starting on Wednesday, Oct. 13.

NSSA Meeting Set

The first meeting of the newly formed southwestern region of the National Sanitary Supply Association will be held at the Hotel St. Charles, New Orleans, Nov. 16 and 17. Joseph Lassen of American Chemical Co. of Louisiana, New Orleans, was recently elected regional vice-president of the NSSA, to represent the southwestern region.

Another change in the executive make-up of the National Sanitary Supply Association concerns Erwin Zaban of Zep Manufacturing Co., Atlanta, southern regional vice-president, whose resignation was accepted recently by the board of the directors of NSSA. Mr. Zaban, who resigned because of press of work, has been succeeded by John Walsh of Tesco Chemicals Co., Atlanta. Mr. Walsh was chairman of both Atlanta regional meetings held while Mr. Zaban was vice-president from the southern region.

The western regional meeting of the NSSA will be held in San Francisco, Nov. 11-12 at the Fairmont Hotel, San Francisco.

The dates of the 1949 convention of the National Sanitary Supply Association were announced recently as May 8, 9, 10 and 11 at the Hotel Sherman, Chicago.

A.I.F.A. Meets

The 15th annual meeting of the Agricultural Insecticide and Fungicide Assn. was held at the Essex and Sussex Hotel, Spring Lake, N. J., Sept. 7-9.

Bartlett Joins West

Perry G. Bartlett, formerly connected with Rohm & Haas Co., Philadelphia, has joined West Disinfecting Co., Long Island City, N. Y. He will do sales research and development for West.

Hentz Retires from P & G

Joseph Hentz of Procter of Gamble Co., Cincinnati, was recently retired. On his retirement the National Sanitary Supply Association's board of directors voted him an honorary membership in the NSSA, in which organization he had taken an active part for many years.

Claire Markets "Fly-Go"

Claire Manufacturing Co., Chicago, recently announced a low pressure DDT aerosol bomb, containing DDT, pyrethrum and piperonyl butoxide, which it is marketing under the trade name, "Fly-Go." A suggested retail price of $1.19 has been set for the product.

N.P.C.A. Meets in Toronto October 18-20

THE main emphasis will be on problems relating to management at the 16th annual convention of the National Pest Control Association, to be held Monday, Tuesday and Wednesday, Oct. 18, 19 and 20 at the Royal York Hotel, Toronto, Can. Association business, various panel discussions of technological, management and legislative subjects affecting the industry, new product information, with possible equipment demonstrations, election of officers, as well as the social side of the program will take up the major portion of the delegates' time.

Government speakers include Dr. F. C. Bishopp, assistant chief, Bureau of Entomology & Plant Quarantine; and Dr. L. S. Henderson of the Division of Insects Affecting Man and Animals. Dr. Bruce H. Douglas, Health Commissioner of Detroit; Dr. Gordon P. Jackson, Toronto medical officer; and Dr. James C. Munch are also to speak at the convention.

Dr. Bishopp will discuss new control chemicals, particularly those relating to flies. Dr. Henderson's topic is: "Research on Insecticides for Use Against Household Insects." Toxicity of the newer insecticides and rodenticides will be covered by Dr. Munch. The "Government's Point of View on Legislation" will be discussed by the health commissioner of Detroit. Dr. Gordon P. Jackson of the Toronto Health Department will discuss aspects of coordinated pest control work involving government and industry.

In general the tentative program will follow these outlines. The morning of the first day of the meeting and the final day will be devoted mainly to association business. All sesions on Monday are to be open. Tuesday morning will be a closed session for NPCA members only. The afternoon session is open, as is the Wednesday morning meeting. There will be special luncheons on Monday and Tuesday at which it is planned to have speakers. The banquet on Wednesday night will conclude the convention.

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